Baystate Roads Program
Local Technical Assistance Program (LTAP)

Tech Notes

Tech Note #52

US DOT RURAL SAFETY INITIATIVE

Rural roads carry less than half of America's traffic yet they account for over half of the nation's vehicular deaths. It is time to put a national focus on a local problem.

Objective

The focus of the U.S. Department of Transportation's (DOT) Rural Safety Initiative is to highlight available options to help reduce highway fatalities and injuries on the nation's rural roads. DOT's new endeavor will encompass a comprehensive approach, addressing five focus areas:

Safer Drivers
Better Roads
Smarter Roads
Better Trained Emergency Responders
Outreach and Partnerships

Characteristics of Rural Crashes

By nearly every quantifiable measure, rural highway fatalities exceed the national average.

A Disproportionate Number of Fatalities: Although 23 percent of the U.S. population lived in rural areas in 2006, rural fatal crashes accounted for 55 percent of all traffic fatalities.

Less Exposure, Yet More Fatalities: While the majority of deaths occured on the rural roads, fewer miles were driven there. In 2006, just over 1 trillion miles were driven on rural roads verses approximately 2 trillion on urban roads.

A Higher Fatality Rate: The fatality rate per 100 million vehicle miles traveled was more than double in rural areas than it was in urban areas (2.25 and .93 respectively).

Less Seat Belt Usage in Rural Areas: Fifty-seven percent of all people who died on rural roads were not restrained, compared to 52 percent in urban areas. Last year, the seat belt use rate among occupants of vehicles in urban areas was 84 percent compared to 78 percent in rural areas. In 2006, 68 percent of fatally injured pickup truck drivers were unrestrained; the restraint use rate among these drivers is the lowest of any vehicle type.

More Speeding Fatalities: In 2006, 12,190 drivers involved in fatal crashes were speeding; 57 percent were drivers in rural areas.

More Impaired Driving Fatalities: Of the passenger vehicle occupant fatalities involving impaired driving crashes (BAC .08+) in 2006, 58 percent were in rural areas. At most blood alcohol concentration (BAC) levels, the percent of rural drivers involved in fatal crashes exceeds the percent of urban drivers involved at the same BAC.

A Lethal Combination: In 2006, rural drivers made up 62 percent of total drivers found to have been drinking, speeding, and unrestrained.

Post-Crash: In 2006, 66 percent of rural drivers killed in crashes died at the scene, compared to 51 percent of

urban drivers. Seventy-two percent of drivers who died en route to the hospital were in rural areas.

Most Fatalities Occur on Two-Lane Rural Roads: Nearly 50 percent of total highway fatalities occur on two-lane rural roads. The fatality rate overall on local roads is more than twice that of interstates.

Solutions

Safety has always been the hallmark of the DOT, and continues to be its top priority. While great progress has been made in improving safety and reducing deaths nationally, the number of rural highway fatalities remains high. This intiative is designed to bring a new focus and comprehensive approach to encourage safer drivers, better and smarter roads, better trained emergency responders, and stronger partnerships to help improve safety on America's rural roads.

I. Safer Drivers

Seat Belts and Ignition Interlocks: The National Highway Traffic Safety Administration (NHTSA) will fund four demonstration projects in rural areas to raise seat belt usage and/or promote greater deployment of ignition interlocks to combat drunk driving by repeat offenders.This program will offer grants to recipients to implement either of the following initiatives:

• INCREASING SEAT BELT USE IN RURAL AREAS: This approach would focus on the visibility of enforcement in several low belt use counties in an effort to raise the overall seat belt use rate. The grant amount for this program is $300,000 per recipient.

• INCREASING USE OF IGNITION INTERLOCKS IN RURAL AREAS: Local jurisdictions in rural areas will demonstrate strategies for overcoming identified challenges to the use of interlocks, which are devices used to prevent intoxicated drivers from starting their vehicles. States would identify problems, such as the reluctance of courts in rural areas to require installation of interlocks. The grant amount for this program is $100,000 per program.

Sobriety Checkpoints: Small rural agencies have expressed concerns about their ability to effectively conduct sobriety checkpoints due to a lack of resources. However, NHTSA has sponsored research that shows low staffing checkpoints (operated by five or fewer officers) can be just as effective as more traditional, larger checkpoints (20 or more officers). NHTSA has published guidelines and will continue to work with state and local officials to increase the use of low staffing checkpoints.

Preventing Rollovers: Higher-speed roads with curves and grades, fewer lanes, narrower shoulders, and ditches near the road are factors which contribute to vehicle loss-of-control in rural areas. Rollovers are particularly problematic in rural areas: 41 percent of passenger vehicle occupant fatalities in rural areas involved rollovers, versus 26 percent for urban areas. In 2007, NHTSA issued a Final Rule for Electronic Stability Control (ESC), which will significantly reduce rollovers. ESC helps the driver maintain control of the vehicle when it is dangerously under or over-steered. When fully deployed into the fleet, it is estimated that ESC will reduce single vehicle crashes of passenger cars by 34 percent and single vehicle crashes of sport utility vehicles by 59 percent.

In addition to ESC, NHTSA is developing performance standards to protect occupants during a rollover crash. New safety measures have been evaluated, including side curtain air bags designed to prevent rollover ejection. NHTSA expects to publish a Notice of Proposed Rulemaking (NPRM) for a rollover ejection mitigation requirement in 2008 and a final rule in 2009.

Commercial Vehicles: The Federal Motor Carrier Safety Administrator (FMCSA) is working with states to develop strategies for ensuring the safety of commercial vehicles on rural roadways and to include a component on rural commercial vehicle safety into each state's annual Commercial Vehicle Safety Plan. This year's guidance from the DOT will focus on large truck fatalities occurring in work zones. Preliminary data shows that large-truck, work-zone fatalities account for nearly 5

percent of the approximately 5,000 large truck deaths each year. States will be requested to identify rural road crash and fatality problems and use grant funding to focus safety efforts in those areas.

II. Better Roads

Improving High Risk Rural Roads (HRRR): This program within the Highway Safety Improvement Program is available to states for high risk rural road projects under a provision in the most recent highway reauthorization law, SAFETEA-LU. Historically, the program has been underutilized as states have chosen to focus their funding on other priorities. The funds may be used for construction or operational improvements, such as adding or expanding shoulders, straightening dangerous curves and improving hazardous intersections. Through December 2007, states have only obligated an estimated $26 million of the $269 million ($90 million was set aside per year for fiscal years 2006 to 2008) in available HRRR program funds to improve safety on rural roads. The Department's goal is to encourage states to tap into all the funding Congress has provided for this program.

III. Smarter Roads

University-Based Rural Safety Research: Sponsored by FHWA, the University of Minnesota's Center for Excellence in Rural Safety (CERS) was established in SAFETEA-LU to provide research, training, and outreach on innovative uses of technology to enhance rural safety and economic development; assess local community needs to improve access to mobile emergency treatment; and develop online and seminar training for rural transportation practitioners and policy-makers.

Speed Management: NHTSA and FHWA will work closely with states and rural communities to determine the best way to set speed limits on rural arterial and connector roads based on engineering data. Setting rational speed limits shows significant promise for reducing motor vehicle crashes on these roadways.

This outreach and technical assistance builds on NHTSA and FHWA field tests, in which speed limits were set based on engineering studies. Using a new baseline for the new speed limit determination, the tests largely led to increasing the existing, posted speed limit by five to 15 miles per hour. The public overwhelmingly supported the new speeds, and compliance with the new speed limit increased from 5 percent to almost 50 percent.

Smarter Roads through ITS Technology: The Research and Innovative Technology Administration (RITA) will make $6 million available for partnerships with rural communities to test and expedite the deployment of Intelligent Transportation Systems (ITS) technologies and innovations that will seek to reduce accidents on rural roadways. The Department's ITS program focuses on providing drivers with real-time safety warnings, dynamic traffic and transit information, and advanced navigational tools to prevent accidents and ease congestion. The ITS program works collaboratively with industry to develop intelligent vehicles and intelligent infrastructure that can communicate to improve safety. Safety enhancements that are or will soon be available as a result of ITS technologies include:

- Intersection and vehicle-based collision avoidance systems;
- Lane departure warning systems to warn drivers when vehicles leave the roadway;
- Variable speed limits and roadway indicators that adjust based on conditions;
- Dynamic curve warning systems to warn drivers through dynamic signs or eventually direct communication with the vehicle;
- Road weather information systems that help officials know when deicing materials are needed;
- Stop-sign-controlled intersection technology that provides vehicles with real-time information about gaps in on-coming traffic to help drivers make safer turns;
- Emergency communication systems such as 911 dispatchers to send and receive digital pictures, video, e-mail, and text messages so that emergency personnel can respond quickly and appropriately to incidents;

• Real-time 511 information services, traffic, weather, and navigation.

The DOT will select rural partner communities with significant and quantifiable safety hazards that have identified high-impact, leading-edge ITS solutions and work with these communities to test the new technologies. Results will be evaluated and examples and best practices will be published for other rural communities that are facing similar safety challenges. Further information on potential safety applications of ITS in rural areas can be found at **http://www.itsdocs.fhwa.dot.gov/index.htm** or **http://www.its.dot.gov/index.htm**.

IV. Better Trained Emergency Responders

The Automatic Crash Notification and Wireless Enhanced 9-1-1: Rapid, accurate location of motor vehicle crashes combined with excellent post-crash emergency medical care is essential to reducing rural road deaths. In rural areas, emergency response to crashes faces a variety of challenges, including delays in the discovery of the crash, sporadic cell coverage hindering the placement of an emergency call, dispatching emergency responders, and the long distances to reach crash victims and transport them to medical care.

The Automatic Crash Notification and Wireless Enhanced 9-1-1 projects will provide geographic location information that enables emergency responders to locate motor vehicle crashes, as well as provide crash mechanism data that helps to predict serious injury. The next generation of 9-1-1 technology will improve transmission of these data, ensure that correct emergency services are promptly dispatched, improve triage decisions by dispatch and EMS personnel, and expedite both the delivery of emergency services and the transportation of patients to definitive medical care.

Emergency Medical Services: NHTSA is helping to develop National Trauma Field Triage Protocols to guide EMS providers in expediting transport of seriously injured patients to trauma centers. NHTSA's National EMS Information System (NEMSIS) will aid in evaluation and improvement of pre-hospital trauma and EMS care. NHTSA has developed a Rural EMS Medical Director's Course, available online, to assist rural physicians in improving pre-hospital emergency medical care.

V. Outreach and Partnerships

Training and Technical Support: FHWA has developed and continues to offer a number of courses directly related to rural roadway safety, including : Roadway Safety Fundamentals, Rural Road Safety Audits, Low Cost Safety Countermeasures and Common Sense Intersection Solutions. Additional training packages on intersections without signals and other low-cost safety solutions are currently under development.

FHWA is making available safety guidance and technical documents to targeted rural owners, including specialized guidance on low-cost safety fixes for dangerously-curved roads that will incorporate safety into resurfacing projects, proper maintenance of water run-off safety features, and guardrail repair and safety upkeep. FHWA also provides extensive guidance and technical support for the installation of shoulder and centerline rumble strips, a specific, low-cost infrastructure solution that is particularly relevant for rural roads.

Resources:
www.dot.gov/affairs/ruralsafety/ruralsafetyinitiativeplan.htm.

www-fars.nhtsa.dot.gov