The U.S. Department of Transportation Rural Safety Initiative
February 2008

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. This targeted national campaign will take advantage of opportunities to raise awareness of the risks drivers face on America's rural roads and provide communities with tools and assistance to address these risks where the Department's resources can be leveraged quickly and effectively.

Smarter, low-cost solutions to improve rural road safety are readily available and can be deployed quickly. This initiative seeks to refocus the Department's extensive safety programs in a comprehensive way to help state and local leaders get solutions implemented in rural areas faster.

A May 2004 General Accounting Office report found that four key factors contribute to rural road deaths: human behavior, roadway environment, vehicles, and medical care after a crash. This document describes the Department's ongoing activities and new initiatives to highlight the issue of rural road safety and address the factors which contribute to rural fatalities.

All relevant agencies within DOT – the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration (FMCSA), the National Highway Traffic Safety Administration (NHTSA), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Research and Innovative Technology Administration (RITA) – will aid in aggressively promoting solutions, educating the public, and working with local officials to reduce injuries and deaths on rural roads.

The Department's new endeavor will encompass a comprehensive approach, addressing five focus areas:

I. Safer Drivers
II. Better Roads
III. Smarter Roads
IV. Better Trained Emergency Responders
V. Outreach and Partnerships

CHALLENGES

Of the 8.4 million lane-miles of roads in the United States, over 6 million lane-miles are rural. Almost 80 percent of rural roads are owned and operated by local entities, making the dissemination of highway safety information to local officials and the public critical to improving national rural road safety.

Rural areas face a number of unique highway safety challenges. Rural crashes are more likely to be at higher speeds than urban crashes; victims of fatal crashes in rural areas are more likely to be unbelted than their urban counterparts; and it often takes first responders longer to arrive at the scene of a rural crash, leaving victims waiting longer for medical attention. Outdated roadway design and roadside hazards such as utility poles, sharp-edged pavement drop-offs, and trees close to the roadway also are major contributors to the severity of rural crashes.

Rural Fatalities

According to the latest data from NHTSA's Fatality Analysis Reporting System (FARS), the fatality rate for rural crashes is more than twice the fatality rate in urban crashes. In 2006, 23,339 people were killed in rural motor vehicle crashes, accounting for 55 percent of all motor vehicle fatalities.[1] Table 1 shows fatalities (number and percent) and the fatality rate by year from 1997 to 2006.

Table 1: Fatalities and Fatality Rate by Rural/Urban Roadway by Year

Year	Rural Roadway			Urban Roadway			Total*	
	Fatalities	%	Rate**	Fatalities	%	Rate**	Fatalities	Rate**
1997	25,135	60%	2.52	16,829	40%	1.08	42,013	1.64
1998	25,185	61%	2.44	16,219	39%	1.02	41,501	1.58
1999	25,548	61%	2.40	16,058	38%	0.99	41,717	1.55
2000	24,838	59%	2.29	16,113	38%	0.97	41,945	1.53
2001	25,150	60%	2.27	16,988	40%	1.01	42,196	1.51
2002	25,896	60%	2.30	17,013	40%	0.98	43,005	1.51
2003	24,957	58%	2.30	17,783	41%	0.98	42,884	1.48
2004	25,179	59%	2.36	17,581	41%	0.93	42,836	1.44
2005	24,587	57%	2.38	18,627	43%	0.95	43,510	1.46
2006	23,339	55%	2.25	18,359	43%	0.93	42,642	1.41

Source: NCSA, FARS 1997-2005 (Final), 2006 (ARF), FHWA
* Total includes fatalities on unknown roadway
** Fatality rate per 100M VMT

[1] The fatality rate and total number of rural deaths by state can be found at the end of this document.

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 occur on rural roads, fewer miles are driven there. In 2006, just over 1 trillion miles were driven on rural roads verses approximately 2 trillion miles 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 0.93 respectively).

- *Less Seat Belt Usage in Rural Areas*: Fifty-seven percent of all the 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.

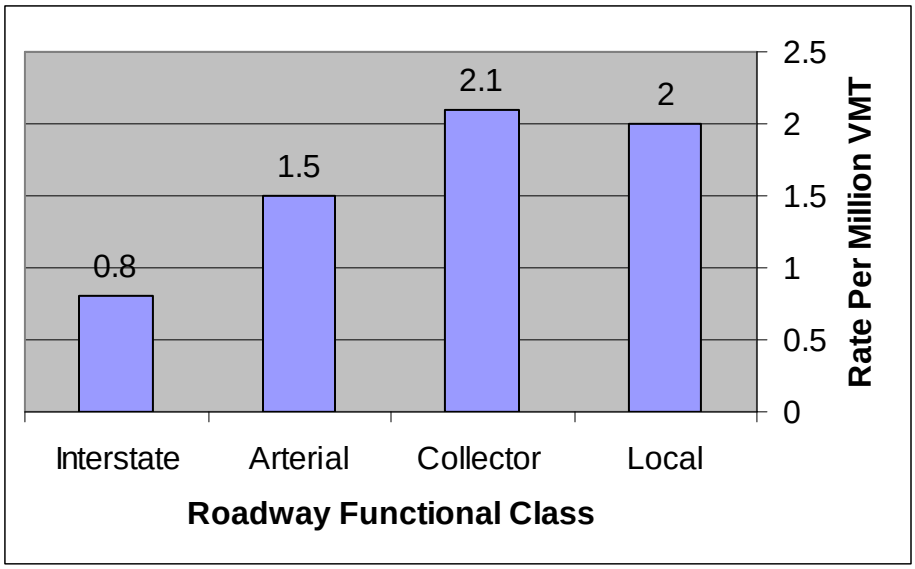
- *More Impaired Driving Fatalities*: Of the passenger vehicle occupant fatalities involving impaired driving crashes (BAC .08+) in 2006, 58 percent were in rural areas. At most blood alcohol concentration (BAC) levels, the percent of rural drivers involved in fatal crashes exceeds the percent of urban 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 a 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 (see Chart 1).

Chart 1: Fatality Rate by Roadway Type (2005)



SOLUTIONS

Safety has always been the hallmark of the U.S. Department of Transportation, and continues to be the top priority. While great progress has been made in improving safety and reducing deaths nationally, the number of rural highway fatalities remains disproportionately large. This initiative is designed to bring new focus and a 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: 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. This strategy is now being tested in Wyoming and North Dakota. 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 an intoxicated drivers from starting their vehicle. 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: A concern smaller rural agencies have expressed is 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, narrow or no 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 an NPRM for a rollover ejection mitigation requirement in 2008 and a final rule in 2009.

Commercial Vehicles: 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 Department 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.

Improving Rural Roads in the Delta Region: Approximately $9.2 million in available FY 2008 funding for the Delta Region Transportation Development Program will be targeted toward funding innovative safety projects in the Delta region, which consists of 240 counties in Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. Typical projects include innovative safety infrastructure improvements, such as cable median barriers and rumble strips; innovative intersection improvements such as roundabouts; corridor safety improvements; and adding ITS features to infrastructure. Many of these solutions are relatively low cost, allowing states the opportunity to quickly and efficiently improve safety on rural roads.

Safety Circuit Rider: The Safety Circuit Rider pilot program is aimed at reducing crashes on two-lane rural roads by providing technical assistance and best practices for improving safety to local agencies. This highly successful pilot program has been tested in Kentucky, Florida, West Virginia and the Northern Plains Tribal Technical Assistance Program Center in North Dakota. Where improvements have been implemented in these states, crashes have been reduced. Twenty other states are implementing local safety circuit rider programs, and in September 2008, FHWA will publish a manual of proven safety measures to support further development and implementation.

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.

Leading UTC research includes the development of an animal detection system that warns drivers in rural areas when wildlife such as deer and elk are on or near the roadway (*Montana State's Western Transportation Institute*); field testing and analysis of collision avoidance technology at non-signalized rural highway intersections (*University of Minnesota's ITS Institute*); analysis and recommendations for reducing night-time rural intersection collisions caused by ineffective road lighting (*Iowa State*); and analysis of factors contributing to accidents on two-lane rural roads (*University of Washington*).

Speed Management: This year, 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 at reducing motor vehicle crashes on rural arterials and connectors.

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: 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 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 (i.e., sensors to provide oncoming traffic alerts, pedestrian and obstruction detection systems, dynamic message/warning signs, automatic braking 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 communications 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; and,
- Real-time 511 information services, traffic, weather, and navigation.

The Department 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. Next Generation 9-1-1 technology improves transmission of these data, helps ensure the correct emergency services are promptly dispatched, improves triage decisions by dispatch and EMS personnel, and expedites both the delivery of emergency services and the transportation of patients to definitive medical care.

This year, NHTSA will initiate a grant program that will assist public safety answering points (PSAPs) in upgrading their capability to receive emergency calls from Graphic Information System (GIS)-enabled cell phones and determine the geographic location of the caller. The Department is currently working with Helena, Mont.; Rochester, N.Y.; Seattle, Wash.; St. Paul, Minn.; and the State of Indiana to test the capability of the Next Generation 9-1-1 network to transmit digital pictures, video, email and text messages that will give emergency personnel the critical information they need to respond quickly and appropriately to incidents.

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.

Hazardous Materials Emergency Preparedness (HMEP) Grants Program: Administered by PHMSA, HMEP grants help rural communities respond to hazardous material emergencies. The $28 million grant program will:

- Help Re-Establish Local Emergency Planning Committees (LEPCs) in Rural Communities: This will increase the number of rural trained volunteer emergency responders. Currently there are as many as 1,700 inactive LEPCs in rural America. Re-activated LEPCs will be eligible to receive HMEP grants for training and planning activities and help increase the number of volunteers trained in operations-level hazardous materials response.

- Identify Rural Hazmat Challenges: PHMSA, working in partnership with the U.S. Fire Administration (USFA), and emergency response organizations will help volunteer emergency responders plan and train for hazardous materials transportation incidents.

- Develop curriculum and technical assistance programs: Work with other federal agencies, including EPA, DOE, FEMA, and the USFA/DHS National Fire Academy, to develop innovative new curricula and technical assistance programs that specifically target improving rural community hazardous materials planning and response capabilities, including guidelines for responding to alternative energy product spills.

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 intersection 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, incorporating 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 should and centerline rumble strips, a specific, low-cost infrastructure solution that is particularly relevant for rural roads.

Crash Reduction Factors Report: This year, FHWA will hold workshops and conduct other outreach on its new Crash Reduction Factors report. A web-based version of the workshop is being considered to more widely expand delivery to rural areas. The report provides a comprehensive guide to help local road owners and operators pick infrastructure upgrades that can best improve safety. FHWA compiled a set of crash reduction factors based on a broad range of infrastructure countermeasures, to assist roadway owners in making appropriate selections of safety treatments.

Safety Information Clearinghouse: FHWA is currently upgrading the National Work Zone (WZ) Safety Information Clearinghouse (www.workzonesafety.org) which includes significant information specific to rural needs in work zones. The website includes work zone related crash data, laws and regulations, guidance, outreach material, safety products, research results, and training courses.

Policy Guide for Rural Road Safety: FHWA is developing guidance for state and local policy makers on programs and investments that generate the most effective safety improvements on rural roads to accelerate the deployment of safety improvements and reduce fatalities, injuries, and crashes on rural roads. The guidance will include specific policy level suggestions and consider the 4E's (engineering, enforcement, education, and emergency response), and political considerations (such as the role of road safety in public health, quality of life, and budgeting). The guidance will describe specific Federal aid programs, funding sources, resources, and partners where appropriate.

Rural Commercial Vehicle Enforcement: FMCSA is beginning a project with the American Association of Motor Vehicle Administrators (AAMVA) to convene a working group to research and analyze existing training opportunities and identify effective methodologies for delivering training on commercial vehicle safety strategies to local law enforcement agencies.

High School Rural Safety Message Competition: NHTSA will conduct a community competition to develop teen traffic safety messages and associated local activities beginning in September 2008. This competition will be designed to educate youth about the dangers on rural roads.

Assist Law Enforcement: In FY 2009, NHTSA, in conjunction with major law enforcement organizations, will implement a rural/suburban enforcement initiative focused on combining alcohol, belt and speed strategies through law enforcement leadership and incentives. This new initiative is intended to develop programs that will significantly increase routine law enforcement activity at the community level, and in rural areas.

FATALITIES IN MOTOR VEHICLE TRAFFIC CRASHES OCCURRING IN RURAL AREAS

5-YEAR AVERAGE FOR 2002 TO 2006

RURAL VEHICLE MILES TRAVELED (VMT), AND FATALITY RATES PER 100 MILLION RURAL VMT, BY STATE {SORTED BY FATALITY RATE}

Rank	State	Rural VMT (Millions) 5-Year Average	Fatalities in Rural Crashes 5-Year Average	Fatality Rate per 100 Million Rural VMT 5-Year Average
1	**Florida**	41,372	1,466	3.54
2	**Arizona**	17,869	597	3.34
3	**South Carolina**	28,515	912	3.20
4	**Mississippi**	24,442	747	3.06
5	**Nevada**	5,542	158	2.85
6	**Montana**	8,445	232	2.75
7	**Louisiana**	21,731	588	2.71
8	**Missouri**	31,069	840	2.70
9	**Kentucky**	27,187	721	2.65
10	**California**	63,977	1,678	2.62
11	**South Dakota**	6,550	171	2.60
12	**North Carolina**	43,229	1,124	2.60
13	**Arkansas**	19,809	513	2.59
14	**Delaware**	3,178	82	2.57
15	**Utah**	8,161	209	2.56
16	**New Mexico**	13,743	351	2.55
17	**Texas**	81,418	2,064	2.53
18	**Alabama**	29,671	747	2.52
19	**Idaho**	8,950	218	2.44

Rank/State		Rural VMT (Millions) 5-Year Average	Fatalities in Rural Crashes 5-Year Average	Fatality Rate per 100 Million Rural VMT 5-Year Average
20	**Kansas**	14,793	360	2.43
21	**Oklahoma**	22,658	551	2.43
22	**Tennessee**	29,896	709	2.37
23	**West Virginia**	13,907	329	2.37
24	**Colorado**	15,314	361	2.36
25	**Washington**	16,873	384	2.27
26	**Wyoming**	6,654	148	2.23
27	**Alaska**	2,463	54	2.21
28	**Pennsylvania**	40,852	880	2.15
29	**Hawaii**	2,619	56	2.15
30	**Ohio**	38,374	810	2.11
31	**Oregon**	16,760	348	2.08
32	**Michigan**	33,167	678	2.04
33	**Nebraska**	11,434	223	1.95
34	**Wisconsin**	29,375	561	1.91
35	**Illinois**	30,668	576	1.88
36	**Georgia**	45,561	851	1.87
37	**Maryland**	14,727	268	1.82
38	**Virginia**	31,342	567	1.81
39	**Iowa**	19,124	337	1.76
40	**North Dakota**	5,561	94	1.70
41	**New York**	36,769	602	1.64
42	**Maine**	10,951	179	1.64

Rank/State		Rural VMT (Millions) 5-Year Average	Fatalities in Rural Crashes 5-Year Average	Fatality Rate per 100 Million Rural VMT 5-Year Average
43	**Rhode Island**	900	15	1.62
44	**Indiana**	36,997	587	1.59
45	**Minnesota**	27,223	420	1.54
46	**New Jersey**	8,475	130	1.53
47	**New Hampshire**	6,679	101	1.52
48	**Connecticut**	3,934	57	1.44
49	**Massachusetts**	5,177	66	1.28
50	**Vermont**	5,923	72	1.21
.	**National**	1,070,010	24,792	2.32
	Puerto Rico	2,003	238	11.87