



Our Commitment to Roadway Safety

by Dr. Airton G. Kohls

Rural roads account for approximately 40 percent of the vehicle miles traveled in the US, but for 55 percent of fatalities. According to 2010 data, the state of Tennessee accounted for 472 urban traffic fatalities in contrast to 559 rural traffic fatalities. Why do we have so many rural traffic fatalities? We have mentioned in some previous RoadTalk articles that rural areas face a number of highway safety challenges due to the nature of their facilities. Local rural roads encompass a wide range of surface types, including paved facilities, gravel roads, and dirt roads. In contrast to higher volume facilities, many local rural roads lack suitable design standards, delineation and signing. In many cases, rural roads were not professionally designed, but rather “evolved” over time to their current geometric configuration. We can add to the mix: speeding drivers (due potentially to restricted enforcement), shortage of infrastructure funding, the higher chance of vehicle collisions with animals and the reactive approach of local agencies. Be proactive! Take a look at the following set of countermeasures addressed to Roadway Departure Safety and help reduce the number of fatalities on our rural roads in Tennessee!

Install Advanced Curve Warning Signs - roadway departure crashes attributed to motorists running off the road while attempting to negotiate a curve or turn in the roadway. In some situations, the driver was not aware they were approaching a curve or turn.



Provide Curve Delineation Signing (Chevrons) - roadway departure crashes attributed to motorists running off the road while attempting to negotiate a curve or turn in the roadway. In some situations, the driver was not aware of the severity of the curve in relation to their operating speed.

Install Object Markers - roadway departure crashes attributed to motorists hitting a fixed object along the side of the roadway. Contributing circumstances include speed and inattention.

Removing, Moving, or Marking Fixed Objects - Roadway departure crashes attributed to vehicles striking a fixed object on the side of the roadway. Examples include trees, utility poles, and culverts.

Create Clear Zones - Roadway departure crashes attributed to striking fixed objects, ditches, or other roadside obstacles.

Install Center Line and Edge Line Pavement Markings - roadway departure crashes attributed to motorists running off the right side of the road, crossing the center line, or dropping off the roadway on an edge drop-off. Contributing circumstances include speed and inattention.

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From the Director

As I write this, I've just returned from the 91st Annual Meeting of the Transportation Research Board (TRB). This mammoth meeting—with nearly 11,000 attendees viewing 4,000 presentations in some 650 sessions—is always held in Washington, DC during January. Now, this isn't the best time to visit DC weatherwise, but attendance has seen steady growth year after year despite the economic downturn.

I think the reason for the Annual Meeting's success is the vast amount of information provided on virtually any conceivable transportation subject. The sessions feature timely topics by noted experts, and there are also committee meetings, workshops, vendor displays, and a host of other meetings that take advantage of the TRB gathering. There are many presentations discussing best practices, as well as the results of successful research that can be put into practice. No matter who you work for, or what job you do, there's something in the TRB conference of interest. It's also a great opportunity to network with your peers. Everybody in our profession should experience this meeting at least once. I've been going for—well, let's just say a few decades—and it never gets old.

One of the side events at TRB is a meeting of the Local Technical Assistance Program (LTAP) centers, which include TTAP. It's always good to catch up with our peers and hear how things are going in their states. Speaking of that, let me plug an event being hosted by our neighbors to the north. With assistance from the Kentucky LTAP Center, the National Association of County Engineers annual meeting will take place in Lexington April 1-5. It's beautiful in Bluegrass Country that time of year, and the event should be highly informative. I know the hospitality will be superb.

Last issue I mentioned that the Senate would soon receive a draft surface transportation bill from its Environment and Public Works Committee. Now there is word that the House Transportation and Infrastructure Committee will issue a markup of its draft bill on February 2. If this is the case, we will have to see how far apart the two versions are and whether the two sides can conference to come up with a version acceptable to both. I am a bit more optimistic about this than I was in my last column, but most people I spoke to during TRB were still skeptical that a bill would pass in an election year. There are still some major differences in approach to be resolved. Time will tell.

On another note, we'd love to feature your activities in RoadTalk. Our editor is always looking for article topics. If you have something innovative you'd like to publicize, or even if you'd just like to highlight your department, get in touch. We'll be happy to work with you on that. Other centers use our articles, so your good practice may get wide recognition.

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In a rare departure from form, I'm not going to comment about Tennessee sports or the weather in this column. I don't want to jinx the warm winter, and discussion of sports is just too depressing! With that, I hope that your winter goes well. If we can help, please don't hesitate to call or email. TTAP looks forward to assisting you.



Our Commitment to Roadway Safety, continued from page 1

Install Raised Pavement Markers (RPMs) - Crashes attributed to roadway departure in wet and/or dark conditions, due to driver inability to see lane markings. This treatment is most applicable in situations where the crashes have occurred at night or on wet pavement. Remember: RPM's may be conflicting with snow plowing services.

Install Edge Line, Shoulder, or Center Line Rumble Strips/Stripes – Run-off-road-right, run-off-road-left, and head-on crashes attributed to a vehicle leaving its lane of travel. Contributing circumstances include speeding, impaired driving, and inattention.

Install Pavement Friction Treatments - Roadway departure crashes attributed to motorists sliding off the roadway. This treatment is most applicable in situations where the crashes have occurred on wet pavement.

Provide Safety Edge for Pavement Edge Drop-off - Roadway departure crashes attributed to motorists dropping off the roadway due to an edge drop-off. Contributing circumstances include speed, weather issues, and inattention.

You can find more info at: http://safety.fhwa.dot.gov/local_rural/training/fhwasa1109/fhwasa1109.pdf.

Therefore, to reduce the number and severity of highway crashes, and improve highway safety in general on rural roadways, infrastructure safety programs should reach local and rural governments. A large number of safety publications and resources have been developed by the Federal Highway Administration (FHWA) and other agencies to address issues that safety practitioners face on a daily basis. In 2012, TTAP will be offering a new workshop – **Road Safety 365**– specifically geared to the local and rural road project development process, enabling local and rural road owners and safety practitioners to effectively use FHWA's information.

This one-day workshop focuses on processes for incorporating safety into all aspects of local and rural road projects, and on making safety a priority through inclusion in the traditional decision-making

process – 365 days a year. The workshop stresses the importance of road safety and illustrates how it can be integrated into rural/local transportation projects at all stages: planning, design, development, implementation, operations, and maintenance. The emphasis is on operations and maintenance to reflect the predominant, day-to-day responsibilities of rural/local transportation agencies. This workshop is aimed primarily at local and rural road and/or public works supervisors. Elected officials, public safety advocates, state DOT personnel, enforcement, consultants, contractors, regional/rural development organizations, municipal associations, town safety committees, local planning commissions and MPOs would greatly benefit from the workshop as well.

After completing the workshop, participants will be able to:

- Explain the need for making roads safer;
- Demonstrate how to “read the road”;
- Describe practical and low-cost countermeasures to improve safety, both on existing roads and during the design stage;
- Identify ways to plan, implement, and fund low-cost safety measures;
- Access existing resources to find the answer and/or data to address a question or problem that comes up on the job;
- Identify effective ways of encouraging communities to make their roads safer;
- Create an action list for implementing at least one safety improvement at their local agency.

(Information from Road Safety 365 Dr. Ron Eck, West Virginia LTAP and Roadway Departure Safety - a Manual for Local Rural Roads Owner - FHWA.)

Road Safety 365 workshop schedule is on page 6 (Training Schedule)

Vegetation Control for Safety

by Dr. Airton G. Kohls

As we approach Spring season, it is time once again to be on the lookout for potential problems caused by vegetation on our transportation system in TN. Roadway safety cannot be achieved without a good maintenance program and employees of local road agencies are responsible for reviewing their roads and rights-of-way, identifying hazards, and making conditions safer. Grass, weeds, brush and tree limbs can obscure or limit a driver's view of traffic control devices, approaching vehicles, wildlife and livestock, and pedestrians and bicycles. It is a fact that controlling roadside vegetation helps reduce crashes and injuries. The main goals of vegetation control include:

- Keeping signs visible to drivers.
- Keeping road users (vehicles, bicycles and pedestrians) visible to drivers.
- Improving visibility of livestock and wildlife near the road.
- Helping pedestrians and bicyclists see motor vehicles.
- Keeping sidewalks and pedestrian paths clear and free from overhanging vegetation.

- Removing trees close to the roadway which could result in a severe crash if hit.
- Helping drainage systems function as designed.
- Preserving pavements through daylighting and root system control.
- Controlling noxious weeds in accordance with local laws and ordinances.

It is extremely important for agencies to develop a roadside vegetation management program to define the best maintenance practices for each location. Vegetation control can be achieved through a variety of strategies including mowing, brush cutting (mechanical and hand), use of herbicides (when permitted), grazing of livestock, cultivating desirable vegetation, and re-vegetation. With ever-tightening budgets and extensive road networks, planning ahead is imperative. Make sure that equipment is in good working condition before the season starts, operators are trained, and loca-



tions that need special attention are mapped and scheduled accordingly. Remember that STOP, YIELD, DO NOT ENTER, ONE WAY and WRONG WAY signs are of critical concern and need to be visible at all times. Appropriate work zone traffic control devices should be used.

TTAP is developing a Vegetation Control workshop designed to help agencies develop and enhance their vegetation management programs.

Suggested field equipment list: Leather gloves, safety glasses or goggles, hard hat, safety apparel (meeting the requirements of ANSI 107 for Class 2 risk exposure), proper footwear, safety chaps, chain saw, fuel and bar oil, gas-line-powered string trimmers, brush knife or machete, loppers, tree-trimming saw with small branch lopper, tall step ladder and an axe.

(Information from Vegetation Control for Safety – A Guide for Local Highway and Street Maintenance Personnel – FHWA)



Livability in Transportation

by Dr. Airton G. Kohls

Livability? What is Livability? Livability is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safe streets. This includes addressing safety and capacity issues on all roads through better planning and design, maximizing and expanding new technologies such as ITS and the use of quiet pavements, and using Travel Demand Management approaches to system planning and operations.

According to Mr. Victor Mendez, Federal Highway Administrator, FHWA is continuing its work to improve the relationship between infrastructure and community needs, specifically to improve a community's 'livability,' to enhance the environmental sensitivity of roads and bridges and to help states explore multi-modal transportation options. Several documents are available for free at <http://www.fhwa.dot.gov/livability/>, including the **Livability in Transportation Guidebook**, **Creating Livable Communities**, **Livability State of The Practice Summary** and Livability Principles videos.

NACE 2012 Conference



The NACE 2012 Annual Meeting and Management & Technical Conference (April 1-5) will be in Lexington, KY.

Visit the website for more information. <http://www.countyengineers.org/events/annualconf/Pages/NACE2012-ConferenceOverview.aspx>

FHWA Office of Safety Introduces Proven Safety Countermeasures Website

by Matt Cate, P.E.

In July, 2008, the Federal Highway Administration (FHWA) identified nine safety countermeasures that could be widely implemented to help cities, counties, and states reduce the frequency and severity of crashes on our nation's highways. This initial list of nine processes, design techniques, and safety countermeasures was presented as a menu from which every transportation agency could select options to accelerate progress towards its safety goals.

FHWA's Office of Safety has issued a 2012 update to this list of highlighted countermeasures. In the four years since the 2008 list was released, much progress has been made. Nationally, highway fatalities have been reduced from 41,259 in 2007, to 32,885 in 2010. Over this same interval, Tennessee's highway fatalities have decreased from 1,211 in 2007, to 1,032 in 2010. Tennessee showed additional progress in 2011 as fatalities were further reduced to 947. While much progress has been made in recent years, there is much more to be done before the nation reaches its ultimate goal of zero traffic fatalities.

Many of the items on the original list, including Road Safety Audits, have been widely implemented and no longer need additional emphasis. Other items have been replaced as crash trends shift the industry's focus to new areas. Other items remain as viable and effective options that have not yet seen widespread implementation. The revised list of proven safety countermeasure includes:

- The Safety Edge
- Roundabouts
- Corridor Access Management
- Signal Backplates with Retroreflective Borders
- Longitudinal Rumble Strips and Stripes on 2-Lane Roads
- Enhanced Delineation and Friction for Horizontal Curves
- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
- Pedestrian Hybrid Beacons
- "Road Diets" (Roadway Reconfiguration)



Roundabouts are a proven intersection safety countermeasure (Photo Credit: FHWA)

To learn more about these proven safety treatments, please visit FHWA's Proven Safety Countermeasures website at <http://safety.fhwa.dot.gov/provencountermeasures/>. Here you will find a description and links to additional information on each of the nine countermeasures. Don't forget that TTAP is also available to provide additional information and assistance with these and other safety countermeasures! Contact us at 1-800-252-7623 or TTAP@utk.edu for more information.

Training Schedule

Education and training opportunities are available through the University of Tennessee Center for Transportation Research (CTR) and Tennessee Transportation Assistance Program (TTAP). This listing of courses currently available includes both TTAP and TATE courses. The Tennessee Academy for Transportation Engineering (TATE) is an educational program providing continuing education for engineers, planners, designers and technicians. The program focuses on the basic design of transportation facilities, the evaluation of traffic operations, and the collection of data to support various transportation studies. Successful completion of the required curricula of core and elective courses confers TATE certification. Professional Development Hours (PDHs) can be granted for the workshops.

TTAP is always eager to meet your research and training needs. If you have a special course in mind or would like a course held on site especially for your employees, please contact Frank Brewer at 1-800-252-ROAD.

****TATE Workshops are in bold.**

Title	Date	Location
Railroad Track Inspection & Safety Standards	12-16 March	Chattanooga
Design of At-Grade Intersections	27 March	Knoxville
Design of At-Grade Intersections	29 March	Nashville
Local Government Guidelines Manual and Right-of-Way	3 April	Cleveland
Work Zone Traffic Control/Flagging	5 April	Chattanooga
Work Zone Traffic Control/Flagging	10 April	Knoxville
Work Zone Traffic Control/Flagging	12 April	Jackson
Work Zone Traffic Control/Flagging	17 April	Nashville
Fundamentals of Traffic Control	26 April	Nashville
Drainage System Maintenance	16 May	Nashville
Road Safety 365	24 May	Chattanooga
Drainage System Maintenance	29 May	Knoxville
Timber & Steel Railroad Bridges	14-16 May	Knoxville
Road Safety 365	7 June	Jackson
Pavement Management Systems	12 July	Nashville
Road Safety 365	25 July	Nashville
Local Government Guidelines Manual and Right-of-Way	7 August	Nashville
Work Zone Traffic Control/Flagging	23 August	Knoxville
Drainage System Maintenance	11 September	Jackson
Traffic Calming	18 September	Knoxville
Traffic Calming	20 September	Nashville
Work Zone Traffic Control/Flagging	4 October	Jackson
Highway Safety Analysis	10 October	Knoxville
Drainage Design	16 October	Nashville
Work Zone Traffic Control/Flagging	1 November	Chattanooga
Local Government Guidelines Manual and Right-of-Way	14 November	Knoxville
Overview of Transportation Planning	4 December	Nashville
Work Zone Traffic Control/Flagging	11 December	Nashville

2012 Work Zone Awareness Week

by Frank Brewer

April 23 – 27 is the 2012 National Work Zone Awareness Week. Each year in April, National Work Zone Awareness Week (NWZAW) is held to bring national attention to motorist and worker safety and mobility issues in work zones. Since 1999, FHWA has worked with the American Association of State Highway and Transportation Officials (AASHTO) and the American Traffic Safety Services Association (ATSSA) to coordinate and sponsor the event. Over the years, other transportation partners have joined the effort to support NWZAW. Are you making any plans to recognize this event? Public Service Announcements on the local radio, short articles in the local newspaper, or a display of cones and drums with a placard are some possibilities.

Work zone activity is significant and is becoming more frequent. As the effects of weather and traffic wear accumulate, our roadways breakdown. In most cases we cannot shut the roadway down for repair or rehabilitation, although that is the safest option. We are forced to do the work while the roadways are in operation. Our efforts do interfere with traffic operations, creating congestion, delay, and user dissatisfaction for the drivers.

Nation-wide statistics from 2009 report 667 fatalities resulted from motor vehicle crashes in work zones. There has been a steady downward trend from the 1,058 fatalities in 2005. (National Work Zone Safety Information Clearinghouse Work Zone Fatalities, http://www.workzonesafety.org/crash_data/, based on information from National Highway Traffic Safety Administration Fatality Analysis Reporting System (FARS).) One study in 2002 indicated that work zones on freeways were estimated to account for nearly 24 percent of non-recurring delay. A combination of recent studies indicates that approximately 50 percent of all highway congestion is attributed to non-recurring conditions, such as traffic incidents, weather, work zones, and special events. (U.S. Department of Energy, Temporary Losses of Highway Capacity and Impacts on Performance, Oak Ridge National Laboratory (ORNL/TM-2002/3). May 2002.) Greater than 60 million vehicles per hour per day of capacity were estimated to be lost due to work zones over a two week period during the peak summer roadwork season in 2001. (U.S. Department of Transportation, Federal Highway Administration, A Snapshot of Peak Summer Work Zone Activity Reported on State Road Closure and Construction Websites. Washington, D.C., August 2002.) A 2009 study by the American Automobile Association estimated the average financial impact of a Fatal Car Collision at \$6M, while the impact of an Injury Only crash was \$126,000.00.

For 2010, Tennessee recorded 1,031 Motor Vehicle Traffic Crash Fatalities. Seven were in work zones. (http://www.workzonesafety.org/crash_data/workzone_fatalities/2010)

Tennessee Safety Performance (Core Outcome) Measures for Tennessee

Core Outcome Measures		Year				
		2006	2007	2008	2009	2010
Traffic Fatalities	Total	1,284	1,211	1,043	986	1,031
	Rural	722	699	603	574	606
	Urban	562	512	440	412	425

http://www.nrd.nhtsa.dot.gov/departments/nrd-30/nca/stsi/47_TN/2010/47_TN_2010.PDF

Get the word out; awareness is a major first step in the reduction of fatalities process. Let TTAP know if you have a local program. We will include those in our next issue. The goal is to make work zones safer for the road users and the road workers.

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TALK TO TTAP

We are always looking for your comments, ideas and suggestions to help make the TTAP Program more useful to you. Please fill out and fax the form below to TTAP at (865) 974-3889 or mail to TTAP; Suite 309 Conference Center Building, Knoxville, TN 37996-4133.

1. Please send me more information on the following articles mentioned in this newsletter.

2. Please list any additional training workshops you would be interested in attending.

3. Please list topics for videos you would like TTAP to obtain.

4. Please list any other ideas or suggestions on how TTAP could assist you.

5. Please list your name and organization to verify for TTAP's mailing list.

Name _____

Address _____

Title _____

Organization _____

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___ yes ___ no

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___ yes ___ no