



Quarterly



Portable Speed Bump Keeps a Safe Work Zone Around Flaggers

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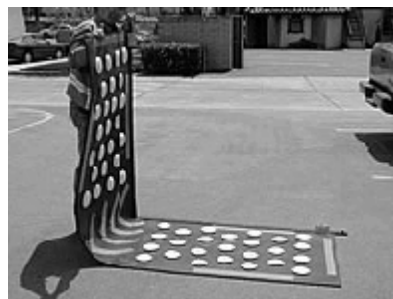
In most cases, motorists entering a work zone decrease the speed of their vehicles and drive more carefully; however, some drivers become frustrated or impatient with traffic delay, making flaggers susceptible to potential injury. In New York, alone, there were five flaggers struck in work zones last year.

Taking part in a program cosponsored by the Federal Highway Administration (FHWA) and the California Department of Transportation (CALTRANS), a Mexican engineer participating in the FHWA-funded CALTRANS-Baja California Personnel Exchange Program, created an imaginative new solution for making work, crash, and incident zones safer—portable speed bumps.

Called the Advance Traffic Warning System (ATWS), the speed bumps are actually an 11' x 3'6" (3.35 x 1.07 meter) mat made of a flexible, yet sturdy, rubber with a polyurethane backing, built around woven fiberglass. The mat thickness, reflective material, and reflective circular ceramic tiles act

as rumble strips (like those often seen in crosswalks), and provide a compelling reason for drivers to decrease vehicle speed when approaching a flagger. Best of all, it's so portable, lightweight, and easy to handle that it can be quickly folded up and moved along work zones within minutes.

Other benefits of the portable speed bumps include resistance to water, grease, and oil. The composite material remains flexible, even in freezing temperatures, and resists



Construction worker shows how easily the portable speed bump can be folded for movement from location to location or storage.

rips, tears, and cuts. The ATWS will sustain any direct pressure on it, and its highly reflective stripes and reflective coating enable workers to use the speed bumps at night.

Although not approved by CALTRANS, if proven effective, this

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ATWS speed bump invention could become one of many success stories from the U.S.–Mexico Border Technology Exchange Program (BTEP), created and funded by the FHWA Office of International Programs. The BTEP is a binational program headed by the FHWA and Mexico's counterpart, the Secretariat of Communications and Transportation (SCT), and it includes all 10 Departments of Transportation sharing the southwestern international border with Mexico.



Portable speed bump acts like a rumble strip to slow the speed of a car driving over it.

Begun just before the North American Free Trade Agreement was passed, the BTEP program encourages a cross-cultural, multinational sharing of ideas and technology among Mexican municipal, State, and Federal transportation agencies. In the case of California, the BTEP includes Metropolitan planning organizations, and universities from California and Baja. The fundamental philosophy of the BTEP is to train individuals from both countries to develop safer roads and to facilitate better coordination of Mexican and U.S. transportation-related projects.

The Importance of Retroreflectivity

by Greg Schertz

Safety Engineer, Federal Highway Administration

In the United States, almost one-half of all traffic fatalities occurs during the dark hours of evening, night, and early morning. However, only one-fourth of all travel takes place during those same hours—a startling and grave statistic.

There are a number of reasons for this disparity, such as intoxicated and fatigued drivers. It is also known that drivers receive much less guidance information at night than during the day. For example, during daylight hours, drivers have a number of visual cues, such as signs, pavement markings, roadside vegetation, guardrails, and textured shoulders, making driving relatively simple. This bounty of visual cues allows drivers to focus less on their proper position on the roadway.

At night, however, this changes drastically. On a dark and unlit road, nearly all cues disappear except those that are retroreflective

(signs and markings). Those few remaining cues become critical to driving, and should they become so worn that they are no longer visible, the chance to miss the information becomes greater, resulting in a greater chance of driver error, and subsequently, a potential crash.

Retroreflectivity is the property of a material that returns light to the source. In the case of roadways at night, the retroreflective materials may be traffic signs and pavement markings and the source is usually the headlights of a vehicle. Because a driver's eyes are close to a vehicle's headlights, some of the light returned from retroreflective materials reaches the driver's eyes. The amount of light from an object reaching the driver's eyes will have a great impact on how bright that object appears to the driver. Therefore, retroreflective materials that are efficient in returning light to a

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National Work Zone Safety Information Clearinghouse

The National Work Zone Safety Information Clearinghouse can help you protect your greatest asset—your employees. Now just a click away on the Internet, the Clearinghouse maintains the world's most extensive roadway safety "cyber library." It contains searchable databases on safety practices, techniques, products and services.

At the clearinghouse web site, you will find:

- ◆ Traffic control and safety "best practices."
- ◆ Latest technologies.
- ◆ Safety training courses and programs.
- ◆ State transportation department safety coordinators.
- ◆ Traffic safety products and services.
- ◆ Related laws and regulations.
- ◆ Legal cases.

<http://wzsafety.tamu.edu>

T³S Tentative 2003 Workshop Schedule

The tentative 2003 schedule for T³S workshops has been established. We have several new courses on the agenda along with topics that have been popular in the past.

Barry Saunders will be returning with a new topic on *Presentation Skills*.

We will also be offering a new topic early in the year on Statistics Fundamentals for Asphalt Technicians.

A “hands-on” *Advanced HEC-RAS* course will be offered by Nadim Aziz. The Basic HEC-RAS class offered in 2002 received excellent comments and attendees immedi-

ately asked for a follow up class. Since this is a computer class, space will be limited.

Another “hands-on” computer class, *Travel Demand Forecasting* using Tran Plan and Quick Response Techniques, will be offered by Wayne Sarasua.

In our continuing effort to promote safety, *Basic Work Zone Safety* courses will be offered. There are space limitation in these classes as well. Rudy Umbs of FHWA will present a course on *Intersection Safety*.

Another new class that will be offered for 2003 is *Tort Liability and*

Ethics for Public Agencies.

WE will also follow up last year’s Herbicide course with a course on *Herbicide Calibration* in the fall.

OSHA Requirements for Public Works was a popular class in 2002. We will again offer a similar class in the late fall.

Geosynthetics will also return in 2003. As always, we will also have topics concerning asphalt pavements and concrete pavements.

While the schedule shown below is tentative, 2003 promises to be a great year for T³S workshops, with a number of first time offerings. We look forward to seeing you in 2003.

Topic	Speaker	Date	Location
Presentation Skills for Managers	Barry Saunders, Management Consultant	January 29	Columbia
Statistics Fundamentals for Asphalt Technicians	Jim Burati, T ³ S	February	Columbia
Basic Work Zone Safety	Tim Baughman, ITRE	March	Charleston, Columbia
Concrete Applications for Local Agencies	Greg Halsted, Portland Cement Assoc	April	Charleston, Columbia
HEC-RAS	Nadim Aziz, Clemson Univ.	May 13, 14	Columbia (SCETV)
Tort Liability and Ethics for Public Agencies	Larry Crowley, Auburn Univ.	May 14, 15	Charleston, Columbia
Travel Demand Forecasting	Wayne Sarasua, Clemson Univ.	June	Columbia (SCETV)
Superpave for Low Volume Roads	Robert Horan, The Asphalt Institute	August	Charleston, Columbia
Geosynthetics	Joel Sprague, Sprague & Sprague Consultants	September	Charleston, Columbia
Intersection Safety	Rudy Umbs, FHWA	October	Charleston, Columbia
Herbicide Calibration	Jason Norsworthy, Clemson University	November	Charleston, Columbia
OSHA Requirements	Van Henson, OSHA	December	Charleston, Columbia

2003 National Showcases: Real-time Technology Experiences

by Gib Peaslee, Florida T² Center

Local road and bridge professionals are expected to do more with less and still keep pace with increasing citizen demands. In addition, municipalities are realigning budgets to enhance security, so an even more formidable challenge exists. Sounds impossible to manage, doesn't it? Well, not quite! Local professionals, a remarkable fraternity, were instrumental in developing an information exchange format that produces the real-time evaluation experience they require to has-

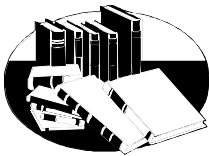
ten the implementation of new technologies. This format allows them to keep pace with new technology and do it cost effectively. Product Demonstration Showcases allow decision makers to evaluate *all* aspects of a product or service *in actual use*, no matter whether it is sharing a local in-house solution, or evaluating technology originating from Federal, State or industry sources.

The Showcase format involves the host agency, sharing the stage with

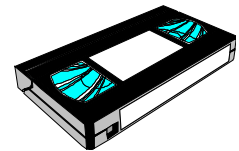
their industry partner, providing:

- A complete start-to-finish overview of how they implemented the technology.
- Their actual cost-benefit assessment.
- A complete review of the product or process by the industry partner (vendor, contractor or consultant).
- Guided site visits for real-time field situation evaluations; and,

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Publications and Video Tapes Available



The publications described below are free to individuals employed by any city or county government agency in South Carolina. You can obtain a free single copy of some publications, or borrow a copy of one of the "for loan" publications or videos.

Videos

Effective Pavement Preservation by Identifying Distress Condition, Causes and Cures. FHWA, & Ohio LTAP.

Road Crew Safety, Safe Practices for Road Construction and Paving Crews. VISTA.

Red Light Green Light. FHWA. (available on the FHWA website at <http://safety.fhwa.dot.gov/media/video.htm>).

Publications

Best Practices of Rural and State-wide ITS Strategic Planning. Publication No. FHWA-OP-02-037.

LTAP Solutions: helping transportation workers tap into resources and training. LTAP.

Results from a Safety Survey. Publication No. FHWA-SA-02-005.

After 9/11: Making Transportation Security a Way of Life. Focus, September, 2002

2002 ITS/Operations Resource Guide. Publication No. FHWA OP-02-041 (access electronically at <http://its.dot.gov/guide.html>)

CDs

Optimizing Performance, Mobility and Safety. (Work zone research, development and technology transfer projects, 1997-2002) FHWA,

Moving Safely Across America (Interactive Highway Safety Experience). FHWA

GASB 34 Phase III Local Governments. FHWA, Ohio LTAP.

Editor's Note: the publications and videos shown here can be ordered by completing the form on page 7 and returning it to us by FAX. Should you have difficulty in accessing any of the on line publications or videos, please call us toll free at 888-414-3069 for assistance.

Holt Hopkins Recognized for Contributions to I-85 Road Widening Project



Anderson County Transportation Director, Holt Hopkins was recognized at the Ribbon Cutting Ceremony for the I-85 Road Widening Project.

Anderson Area Chamber of Commerce Chairman Fred Foster along with South Carolina Department of Transportation Executive Director Elizabeth S. Mabry joined a host of Federal, State, and local officials in Anderson County on Monday, October 28th for the Ribbon Cutting Ceremony and recognition of the partnership that resulted in the successful completion of the Interstate 85 widening project.

Anderson resident and I-85 Advisory Coordinating Committee Chairman Joe Davenport noted that it took the team work of numerous County organizations including the Anderson County Transportation Department led by **Holt Hopkins** along with the I-85 Advisory Coordinating Committee to bring this project to a successful completion.

Holt Hopkins was also presented an award by the Anderson Area Chamber of Commerce later that evening at a dinner reception in recognition of his distinguished service to the community and the

County as the transportation engineer and for special work on the I-85 Task Force Project.

The I-85 widening project improves safety and traffic flow by widening the highway from two to three lanes in each direction for 15 miles between US 29 and Clemson Boulevard in Anderson County. About 11 miles of this project length includes a concrete barrier wall in the median.

Current traffic volumes on I-85 between Clemson Boulevard and US 29 in Anderson County vary between a low of 38,500 to a high of 44,300 vehicles per day. Approximately one third, or about 14,500 vehicles per day, is truck traffic. In 20 years, the projected

traffic count is anticipated to increase to 85,900 vehicles per day.

The cost of this 15-mile widening project is approximately \$60 million. SCDOT is funding the improvements from its interstate program. Funding for the interstate program comes primarily from National Highway funds, Surface Transportation Program funds and Interstate Maintenance funds. SCDOT has also received \$8 million in supplemental funding from the FHWA for the I-85 project.

Editors note: *Congratulations to Mr. Hopkins. We would like to thank James McAdams of Anderson County for his assistance with this article.*

FHWA Defines “Vital Few” Goals

FHWA recently defined Safety, Environmental Stewardship & Streamlining, and Congestion Mitigation as three “vital few” goal areas to focus on over the next 3–5 years. They are focusing FHWA on Saving Lives by addressing three crash types that are most prevalent in fatalities: Roadway Departure (*Head-ons* and *run-off-road* situations), Intersections, and Pedestrians.

The key to success of “vital few” are the specific initiatives carried out at the State/local level based on determination of what best fits local circumstances. FHWA is emphasizing the following strategies to support this goal:

- ◆ Implement Strategic Safety Programs, including Crash Data Systems.
- ◆ Raise Level of Seatbelt Use.
- ◆ Prevent Roadway Departure.
- ◆ Mitigate Consequences of Roadway Departure.
- ◆ Improve Intersection Design, Operation and Enforcement.
- ◆ Improve Safety of Pedestrian Accommodations.

This FHWA-wide focus on safety as a critical goal area is a very important statement of policy and direction, which will have far-reaching impacts on resource decisions and action by FHWA and key stakeholders within States, local governments and the private sector.

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driver's eyes may appear brighter to the driver than those that are not.

Unfortunately, the retroreflective characteristics of traffic control devices gradually deteriorate over time. As a result, it is important to replace traffic control devices prior to the time when they no longer meet the needs of the nighttime driver. The major question is not whether the devices should be replaced, but when? How do we know when the device no longer meets the needs of the driver?

To address the issue of retroreflective deterioration, the national Manual on Uniform Traffic Control Devices (MUTCD 2000) states, *"Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night...Markings that must be visible at night shall be retroreflective unless ambient illumination assures that the markings are adequately*

visible." These standards have remained essentially unchanged for 45 years. The MUTCD 2000 also states *"To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs should be established."*

Although retroreflectometers are an excellent tool for evaluating the efficiency of retroreflective materials, they are not the only resource available to judge the nighttime visibility of traffic control devices. Nighttime visual inspections of signs and markings can be one of the best methods/tools. Establishing a process to evaluate your jurisdiction's signs and markings for nighttime visibility, and maintaining those devices appropriately, can be a great service to the public and can possibly assist your agency in court cases involving visibility of traffic control devices.

The FHWA is currently developing guidance for public agencies to de-

termine the appropriate level of retroreflectivity required by nighttime drivers. Although new retroreflective standards and guidance are not currently in place, all indications are that they will be developed in the near future. Based on the current requirements in the MUTCD, and the knowledge that updated guidelines will be produced, some agencies have initiated nighttime inspection processes to evaluate the visibility of traffic control devices. A systematic process to replace worn out devices can then be implemented to ensure that limited budgets are used efficiently to meet the needs of the nighttime driver.

For additional information, please visit the FHWA retroreflectivity web site at

<http://safety.fhwa.dot.gov/programs/retroref.htm>

or contact *pe-ter.hatzi@fhwa.dot.gov*, *kenneth.opiela@fhwa.dot.gov*, or

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- A real-time field demonstration of the installation process.

The 2003 Spring Showcase portfolio demonstrates a remarkable range of technologies including solutions implemented by enterprising local agencies. Each Showcase delivers realized and future potential cost benefit. Showcases also provide substantial interaction and each day concludes with an open forum discussion. These are cost-effective information exchange opportunities. Previous Showcases have shown that they offer the potential to return your participation investment many times over. These Showcased technologies can improve customer services and produce a sizable re-

turn on your investment, so take advantage of these remarkable opportunities and bring along your decision-making team.

Dates and locations of the showcases are as follows:

- ♦ **Reusable Sidewalk Form Boards—City of Palm Bay, FL, February 19, 2003**
- ♦ **GIS For Small Cities—City of Gulfport, FL, March 11, 2003**
- ♦ **Escambia County Pavement Preservation Program—Pensacola, FL April 1–3, 2003**

- ♦ **Adjustable Manhole Covers—City of Logan, UT, April 29, 2003**

Complete registration procedure, course agenda, overnight accommodations information, payment options and other information is available online at:

www.pdshowcase.org

Or contact Chris Ritch at (352)392-2371 ext 223

Information Request and Address Change Form

To order any of the publications, videos, or other materials listed in this or other issues of *T³S Quarterly*, complete this form and mail it or fax it to **Debbie Lipscomb** at the address or phone number shown below.

**Transportation Technology Transfer Service
Civil Engineering Department
Clemson University, Box 340911
Clemson, SC 29634-0911**

**Phone: 864.656.1456
Toll free: 888.414.3069
Fax: 864.656.2670**

Publications

- Best Practices of Rural and Statewide ITS Strategic Planning
- LTAP Solutions: Helping transportation workers tap into resources and training
- Results from a Safety Survey
- After 9/11: Making Transportation Security of Way of Life
- 2002 ITS/Operations Resource Guide

Videos and CD's

- Effective Pavement Preservations by Identifying Distress Condition, Causes and Cures
- Road Crew Safety, Safe Practices for Road Construction and Paving Crews
- Red Light Green Light
- Optimizing Performance, Mobility and Safety
- Moving Safely Across America
- GASB 34 Phase III Local Governments

Other

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Suggestions for Possible Future Workshop Topics

SPEED BUMP

Dave Coverly



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