



Spring 2005
Volume 16, Number 1

Are We There Yet?

South Carolina Transportation Technology Transfer Service

In This Issue...

- 1** South Carolina I-95 Construction Receives Top 10 Award
- 2** Tracks, Trains, and Automobiles: Safety at Railroad Grade Crossings
- 6** Motorists Face Risk of Death, Injury; Senator Wants Tougher Penalties
- 8** Safety Zone
- 11** New Transportation Faculty
- 11** Change of Address Form

South Carolina I-95 Construction Receives Top 10 Award

By Sandi Priddy
Pictures provided by Jason Thompson

If you traveled to Myrtle Beach from the upstate of South Carolina during the last couple of years, chances are you traveled through the construction/rehabilitation project on I-95 in Florence. The I-95 project consisted of the widening and rehabilitation of I-95 from I-20 to SC 327 in Florence and Darlington Counties. For 13.5 miles, crews constructed an additional two lanes through the median, and then removed and replaced the existing lanes—all while keeping 65,000 motorists moving. This included 10 lane miles of roadway, 6 bridges, and the rehabilitation of 3 interchanges. *Roads and Bridges Magazine* designated this project as one of 2004's Top 10 Road projects in the United States.

SCDOT awarded Lane Construction the bid in June 2002. The project was scheduled to be completed in August 2004, but finished ahead of schedule in May. The cost of the project was just over \$65 million. Lane recycled the old



pavement and used a dowel bar inserter—a first in South Carolina.

With a few minor exceptions, two lanes in each direction were maintained throughout the entire project. Based on SCDOT design standards, workers installed cable guide rail in the median at the completion of the project.

By replacing the badly worn section of pavement, constructing a third lane in each direction, and installing cable guide rail, SCDOT added capacity and improved safety through this section of I-95. ▾



The LTAP Center for South Carolina



Tracks, Trains and Automobiles: Safety At Railroad Grade Crossings

Reprinted with permission from *Tech Transfer*, Fall 2004, the quarterly newsletter of the California LTAP.

By Laura Melendy, University of California Berkeley and
Mark Hood, Pennsylvania State University

Editor's note: Even though this article has information specific to California, the article has relevant material pertaining to any railroad crossing in any state.

There are over 250,000 public and private at-grade railroad crossings for vehicles and pedestrians in the United States. Nationally, there were 2,929 reported collisions at grade crossings in 2003, resulting in 329 fatalities and 1,002 injuries.

Operation Lifesaver, a national, non-profit education and awareness program dedicated to ending crashes, fatalities, and injuries at highway-railroad crossings, provides these national statistics:

- ▶ 64% of all crashes occur in daylight hours
- ▶ 25% of all crashes occur when a vehicle runs into a train
- ▶ Most crashes occur with trains traveling under 30 mph
- ▶ Most crashes occur within 25 miles of the driver's home
- ▶ Nearly 50% of all crashes occur at crossings equipped with automatic warning devices
- ▶ A 100 car freight train traveling at 55 mph may take over a mile to stop once the emergency brakes are applied
- ▶ A typical locomotive pulling 100 railcars can weigh approximately 6,000 tons, making the weight ratio of a train to an automobile proportional to that of an automobile to a soda can
- ▶ Death is 40 times more likely in a crash involving a train, than in a crash involving another motor vehicle.



Reducing crashes at roadway-railroad crossings is a traffic safety objective shared by the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the National Transportation Safety Board (NTSB).

To focus attention on grade crossing safety priorities, the US Secretary of Transportation released an Action Plan for Highway-Rail Crossing Safety and Trespass Prevention in 2004, with the objectives of elevating the importance of highway-rail crossing safety and adopting a uniform strategy to deal with this critical issue. This new Action Plan stresses nine initiatives: to establish responsibility for safety at private crossings; to advance engineering standards and new technology; to expand educational outreach; to energize enforcement; to close unneeded crossings; to improve data, analysis, and research; to complete deployment of emergency notification systems; to issue safety standards; and to elevate current safety efforts for effectiveness.

Also in 2004, the NTSB added "Improve School Bus Grade Crossing Safety" to its list of Most Wanted Transportation Safety Improvements by the States. Currently, California complies with only two of NTSB's five safety recommendations: California uses information about whether school buses routinely cross passive grade crossings as a factor in selecting crossings to upgrade with active warning devices, and California school bus driver training includes driver performance at grade crossings. The three safety recommendations not met by California are: installation of stop signs at passive grade crossings traversed by school buses; presence of "noise-reducing switches" (to reduce radio noise when a driver needs to "stop, look and listen") in all newly purchased school buses; and inclusion of questions on passive grade crossing safety in the commercial driver's license manual and examination. (Passive and active controls will be discussed in more detail under the heading "Traffic control devices.")

The new train horn rule may give some local agencies and communities even more reason to consider enhancing safety at grade crossings. Issued by FRA and effective December 18, 2004, the Interim Final Rule for the Use of Locomotive Horns at Highway-Rail Crossings requires that locomotive horns be sounded 15 to 20 seconds prior to arrival at a grade crossing as a warning to highway users. Exceptions will be made to this rule for areas deemed "Quiet Zones," which are areas where train horns will not regularly be used on the approach to grade crossings, if the crossings have sufficient safety improvements to compensate for the lack of warning from the train

horn sounding. The new train horn rule provides an unprecedented opportunity for communities to reduce train horn noise by enhancing safety at grade crossings through the use of other safety devices.

Untangling jurisdictions

Typically, private railroad companies own the railroad tracks and the property (right-of-way) to either side of the tracks. At the grade crossing, the railroad is responsible only for devices within its right-of-way: the railroad installs and maintains the tracks, installs and maintains the roadway surface between and around the rails, and maintains any grade crossing signals within its right-of-way. However, the selection of the location and type of grade crossing signals to be installed cannot be determined by the railroad alone, because crossing signals are defined by FHWA as traffic control devices to regulate, guide, or warn traffic. The public agency that owns the crossing roadway works alone or in conjunction with the railroad company to conduct an engineering study, and then to create and submit a traffic control proposal for review and approval by the California Public Utilities Commission (more on the CPUC later). Upon approval from the CPUC, the crossing signals can then be installed. Once the crossing signals are installed, the railroad will maintain the signals from that time forward.

Typically, the public entity is responsible for maintaining all approaches to the crossing, including the pavement, advanced warning signs, pavement markings, and the traffic detours which may be needed during maintenance work on the grade crossing. The public entity road owner and the railroad company usually make an agreement, often in writing, defining the responsibilities of each agency at each grade crossing location.

The California Public Utilities Commission (CPUC), however, holds the ultimate authority over cross-jurisdictional grade crossings in California. The CPUC is the state regulatory agency with statutory authority over the 50 railroads and rail transit systems in California, encompassing more than 11,000 public grade crossings located throughout 52 counties and 400 cities across California. Before any new highway-rail grade crossing traffic control system can be installed or before modifications can be made to an existing system, approval must be obtained from the CPUC. The Highway-Rail Crossing Safety Branch of the CPUC reviews proposals for crossings; authorizes construction of new at-grade crossings, underpasses and overheads; investigates deficiencies of warning devices or other safety features at existing at-grade crossings; and recommends engineering improvements to prevent accidents. These activities include developing and enforcing uniform safety standards, analyzing data for crossing closures, reviewing environmental impact assessments, apportioning costs for maintenance of grade

crossing warning devices, and analyzing rail accident data for the CPUC's Annual Rail Accident Report.

The FHWA is also involved in grade crossing safety issues, setting standards and providing guidelines for the assessment of safety at a grade crossing and for correct grade crossing design. These FHWA standards and guidelines include the appropriate use and placement of traffic control devices at and on the approaches to a grade crossing, and the effective integration of grade crossing signals with the other signs, signals and markings on the approaching roadways to ensure the safety of motorists, bicyclists and pedestrians.

FHWA also administers the distribution of Section 130 funds, which are funds authorized in Title 23 United States Code Section 130 and again in the Transportation Equity Act for the 21st Century (TEA-21). Section 130 funds are specifically designated for eliminating hazards at public highway-railroad grade crossings. The CPUC selects and prioritizes the public crossings which need improvements, determines the type of improvements to be made, and then applies for Section 130 funds on behalf of the State. In fiscal year 2003, California captured \$10.2 million of the \$155 million allocated to the States for installing protective devices and eliminating hazards at railroad-highway crossings.

Standards on traffic controls

The national minimum standards and guidance information for traffic control at and approaching highway-rail grade crossings are established in Part 8 of the FHWA Manual on Uniform Traffic Control Devices (MUTCD); the MUTCD 2003 California Supplement amends designated portions of the MUTCD for use in California. Together, the MUTCD and the California Supplement establish State standards for all signs, signals, markings and other warning devices at or approaching highway-rail grade crossings. Collectively, the combination of devices selected or installed at a specific highway-rail grade crossing is referred to as a "traffic control system."

The MUTCD states: "The traffic control devices, systems, and practices described herein shall be used at all highway-rail grade crossings open to public travel, consistent with Federal, State, and local laws and regulations." It further states: "The function of this traffic control is to permit safe and efficient operation of both rail and highway traffic at highway-rail grade crossings. For purposes of installation, operation, and maintenance of traffic control devices at highway-rail grade crossings, it is recognized that the crossing of the highway and rail tracks is situated on a right-of-way available for the joint use of both highway traffic and railroad traffic. The highway agency or authority with jurisdiction and the regulatory agency with statutory authority [in California, the CPUC]... jointly determine

the need and selection of devices at a highway-rail grade crossing.”

Traffic control devices

Generally, traffic control devices for at-grade highway-rail crossings may be categorized as either active controls or passive controls.

Passive controls include those traffic signs and pavement markings which identify and direct attention to the location of a highway-rail grade crossing. For example, the crossbuck sign indicates the location of a railroad crossing to motorists, bicyclists and pedestrians, but does not indicate that a train is approaching. A stop sign is a passive control that can be used to encourage motorists to “stop, look and listen”—or at least, to stop.

Passive devices are often the only grade crossing traffic control devices used on rural and other low-volume roads, public and private. Based on data from the 2004 national crossing inventory, 44 percent or 109,174 of all 245,729 grade crossings in the US used only passive controls; over 80 percent of these or 86,000 of 109,174, were public grade crossings. Passive public crossings account for about 35 percent of all grade crossings, but for as much as 42 percent of all grade crossing fatalities.

Active control systems inform motorists, bicyclists and pedestrians of the approach or presence of a train. Flashing light signals, bells, and crossing gates are examples of active controls. These both indicate the existence of a railroad crossing, and also, when activated, provide warning of an approaching train. Active devices are rarely used alone; they are most often combined with passive devices, such as pavement markings and advance warning signs.

Active controls are widely used on arterials, near schools and commercial areas, at crossings with multiple tracks, at high accident locations, and in urban and other locations where nearby intersections or traffic conditions might cause traffic to queue on or across the tracks. The FRA requires active control at grade crossings where train speeds exceed 79 miles per hour.

While not always obeyed, automatic gate arms present a semi-barrier, discouraging vehicular and pedestrian traffic from crossing when a train is approaching. If crossing gate violations cannot otherwise be deterred, physical barriers in the form of medians, concrete barrier walls, or more substantial gates such as four-quadrant gates or vehicle arresting barriers, can be used to restrict driver access to opposing lanes. Eliminating the at-grade crossing is also an option.

Eliminating at-grade crossings

Although grade separation structures are costly, grade separation is the safest traffic control alternative, because it eliminates all potential points of conflict between trains and the public, while still allowing traffic to cross the railroad tracks. FHWA requires grade separation at crossings of controlled access highways, and the FRA requires grade separation or closure at crossings where train speeds exceed 125 miles per hour. Grade separation should also be considered in areas with high vehicle traffic volumes and/or high train (particularly passenger train) traffic volumes—that is, at locations where at-grade crossing would cause excessive delay to vehicle traffic or excessive risk to both motor vehicle and train passengers.

A final alternative is full closure of the crossing. If acceptable, cost-effective, alternative access is available, and if other

passive or active treatments are ineffective or not feasible, then crossing closure may best balance public need, convenience and safety.

New guidance, more detail

While the MUTCD and California Supplement spell out standards and guidance on how to use specific passive and active controls correctly, the documents lack detailed guidance on how to select the most appropriate type of traffic controls—which depends upon the unique situation of a particular intersection. FHWA’s newly released *Guidance on Traffic Control Devices at Highway-Rail Grade Crossings* fills that gap.



Guidance on Traffic Control Devices at Highway-Rail Grade Crossings is intended to aid practitioners responsible for planning, design or re-design of roadways with grade crossings, who have a general understanding of highway operational concepts and traffic engineering principles, but who may lack specific, in-depth knowledge of highway-rail grade crossings. This report does not define policies or standards, but educates practitioners on the array of tools available, how to determine when each would be appropriate, and where to find more information including the pertaining policies and standards. This guide supplements federal requirements, serving as a reference to aid in decisions about traffic control at grade crossings.

This FHWA report was produced by a technical working group composed of specialists in grade crossing safety, and led by representatives of FHWA, FRA, the Federal Transit Administration (FTA) and the National Highway Traffic Safety Administration (NHTSA). The document reviews existing laws, rules, regulations and policies, and explains the underlying principles of grade crossing safety, including driver sight-distance and decision making, and highway and rail system operational requirements and objectives. The report defines passive and active control devices (as would be found in the MUTCD) and also defines and explains preemption/interconnection, pre-signals, train detection systems, experimental devices, and geometric design options and alternatives for maintaining the crossing which go beyond the MUTCD. Detailed instructions on how to evaluate a grade crossing with quantitative measures, and clear procedures on how to select appropriate components for a safe and effective traffic control system, make this document truly unique and valuable.

Always expect a train

A roadway-railroad grade crossing differs from a roadway-roadway intersection in that the train always has the right of way; motor vehicles approaching a grade crossing should always be prepared to stop if necessary. Drivers may not always understand or obey this. The public roadway agency has the responsibility of ensuring that the public—motorist, bicyclist and pedestrian—has sufficient information, and has it far enough in advance, to make a safe decision whether to cross or wait.

Information for this article came from the Federal Railroad Administration (FRA), the Federal Highway Administration (FHWA), the National Transportation Safety Board (NTSB), the California Public Utilities Commission (CPUC), the Institute of Transportation Engineers, Operation Lifesaver and the Burlington Northern Sante Fe Railway.

To learn more about this topic, plan now to attend the Western Regional Grade Crossing Safety Training Conference, “The Crossing Zone: A Decade of Progress” to be held May 1-4, 2005 in Costa Mesa, California. This



conference is sponsored by the Technology Transfer Program and the Federal Railroad Administration and co-sponsored by Union Pacific, Burlington Northern Sante Fe, Metrolink and other railroads, and the National Association of County Engineers, government and industry.

Conference sessions will cover timely topics, including: trespassing, the new train horn rule, “intelligent” rail systems, homeland security, liability issues, development around existing tracks and crossings, community outreach, important updates on federal legislation and the state of the industry, crossing inventories, the 2003 MUTCD, temporary traffic control, grade separations, crossing closures, signals and preemption, and diagnostic reviews. The conference program will also include three pre-conference tutorials on crossing design, preemption and quiet zones. An exhibit area will feature vendor products and services.

This conference is intended for state and local road and highway agencies—not limited to the western states—and heavy-rail and light-rail owners and operators. Other stakeholders, including law enforcement, crossing equipment suppliers, consultants and the public, are encouraged to attend.

Information on the event is posted at www.techtransfer.berkeley.edu/railroad/.

Editor’s Note: *Guidance on Traffic Control Devices at Highway-Rail Grade Crossings* is available on-line <http://safety.fhwa.dot.gov/media/twgreport.htm>.

Motorists Face Risk of Death, Injury; Senator Wants Tougher Penalties

By Eric Connor
Staff Writer
The Greenville News

By the time Jemima Sanon saw the piece of metal lying in her path on Interstate 85, it was too late.

A car paralleled her to the right, a barrier to her left. Nowhere to go. Then she heard what sounded like the pop of a firecracker as the right tire exploded and propelled her Honda CRV—and her three young passengers—into a terrifying series of rollovers.

Recounting the crash, Sanon said the sheer force flung her 9-year-old cousin, Sampson, violently from the car and into a coma from which he wouldn't awaken. Thirteen days after the Pennsylvania family's Nov. 19 collision with cruel coincidence, Sampson was taken off life support. On a Saturday, he was buried.

Road debris is an all-too-familiar problem in South Carolina, particularly on interstates. You see it virtually everywhere—peeled-off tire treads, garbage bags, lumber, mufflers, furniture.

And it's a problem that has flown under the radar.

A closer look by The Greenville News reveals a state where tossing a sandwich wrapper out the window costs a motorist twice as much as if he allows a pile of logs to spill onto a busy interstate, a state where authorities aren't always sure when they can pull over a driver whose load poses a threat and where budget cuts have left a thinning core of troopers to enforce laws governing road debris.

Presented with these issues by the newspaper, one state senator said he will introduce legislation when the

General Assembly convenes in January to crack down on road debris.

State Sen. David Thomas, R-Greenville, said he intends to bring penalties in line with far more severe littering laws, establish clear lines and mandates for law enforcement and, perhaps most striking, treat unsecured-load violations as offenses that would be counted against a motorist's driving record.

"It ought to be a moving violation," said Thomas, a longtime proponent of litter control.

Over the past three years, one person has been killed and 208 injured in South Carolina as a result of collisions with road debris, according to state traffic statistics. And, over the past three years, 727 collisions with road debris have resulted in an average of 193 cases of property damage per year.

While those numbers account for only a fraction of the collisions South Carolina drivers are involved in each year, critics said one collision—let alone one death—is one too many for such a preventable danger.

Count Sanon among them.

"Because of neglect, now my cousin is gone," the 27-year-old Sanon said.

Sanon's story

The drive from Bensalem, Pa., a suburb just north of Philadelphia, was a good 11 or so hours, but it was worth it to spend a long Thanksgiving with family in Georgia.

It was nearly noon as the family traveled along I-85 in Greenville. In the car were Sampson, Jemima's 19-year-old cousin, Mikel, and her 21-month-old daughter, Kaylin. Moments before the collision, Sanon had the boys practicing songs to sing for a family member's birthday celebration.

Pop!

The minisized SUV rolled over four times, Sanon said. A witness told her that it was as if the car were tumbling within a large clothes dryer. Sampson and Kaylin were ejected. Sampson hit his head. His injuries would be fatal.

As the car settled, Mikel couldn't hear the children crying. He desperately tried to escape the vehicle. Cars were backed up for miles.

Troopers investigating the collision said they recognize the piece of metal as a hook used on auto-dealership transport trucks.

Road debris is a nationwide problem. The AAA Foundation for Traffic Safety released a study last summer that attributes more than 25,000 collisions and as many as 90 deaths in the United States and Canada to vehicle-related road debris.

It will never be known whether the accident could have been prevented. It doesn't make sense, Sanon said, why so many drivers fail to make sure their loads are safe.

But the responsibility doesn't lie there only, she said. For all of the people on the interstates who are conscientious, she questions why the government can't do more to protect them from these types of collisions.

The answer to her question, at least in South Carolina: They can.

Enforcement

Case by case, laws in South Carolina that deal with road debris are complex and, oftentimes, confusing. In Sanon's case, the commercial truck would fall under far more stringent enforcement standards than would a pickup truck carrying a load from a home-improvement store.

Authorities have far more leeway and more clearly defined protocol to pull over a commercial vehicle for violations, and that's where the issue of enforcement confusion comes into play. Laws governing noncommercial vehicles aren't always clear to those enforcing them.

And, judging from efforts by The News to get a clear answer on exactly when and how law enforcement officers can pull a driver over for a potential load hazard, the enforcement community isn't entirely clear on how to apply the laws.

An initial inquiry by the newspaper asking precisely at what point a trooper can pull a vehicle over for an unsecured load yielded a far different interpretation than when the question was pursued further and posed to the Department of Public Safety director and the department's legal counsel.

After consulting several troopers, Sid Gaulden, a department spokesman, said a trooper cannot pull a driver over for an unsecured-load violation. The load, he said originally based on the interpretation of troopers, would have to have already fallen off or be in the process of falling off to provide probable cause for a traffic stop.

That would mean, for instance, that three heavy bags of cement sitting still on a pickup truck's folded-down tailgate wouldn't be deemed enough to initiate a traffic stop. The same would go for a mattress or a load of wood stacked too high above a truck bed.

However, other enforcement officers disagreed.

"If it's sticking up and blowing in the wind, it's probably not secured," said Don Arnold,

director of the Spartanburg County environmental enforcement department, who played an integral part in writing the state's litter laws.

"That gives probable cause for the enforcement officer to stop them and inspect the load."

After the newspaper pursued the issue deeper, consultation with attorneys, state public safety director James Schweitzer and a lieutenant colonel of the Highway Patrol yielded a different interpretation.

"If the trooper's judgment is that an item in a vehicle is in danger of falling onto the roadway, he can make a stop to correct the problem and has the option of writing a citation," Gaulden said later.

Litter law proponents said they work tirelessly to make sure law enforcement officers understand and take seriously the enforcement of litter and unsecured-load laws.

Public safety officials said they take it seriously and deal with the violations they see.

However, fewer state troopers are on interstates as state budget cuts and low pay in recent years have dwindled the force.

Where there were 970 troopers covering the state five years ago, there are currently 822.

So far this year, the Highway Patrol has cited noncommercial motorists in 577 cases under the unsecured-load law, and the State Transport Police, responsible for commercial vehicles, has written 133.



Tom Crosby, a spokesman for AAA Carolinas, said a state that consistently ranks in the top five of highway deaths annually can't afford to allow this trend. Fewer troopers means less time for the few that are available to deal with road debris problems, which fall lower on the priority list when measured against driving under the influence and speeding.

Will Folks, a spokesman for Gov. Mark Sanford, said wasteful spending is the chief reason why more money can't be spent on troopers. "Increasing troopers on the road is certainly a need," Folks said. "Our resources are stretched so thin, which is one reason you have cases like this."

The problem doesn't lie, though, in a shortage of troopers, Gaulden said. It lies with drivers taking responsibility to secure their loads.

"If we had a thousand troopers working the road, you're still not going to keep people from dying on our highways," Gaulden said.

(cont. on page 10)

Safety Zone



For the past two years we have included valuable information concerning your occupational health in the Safety-Zone section of our newsletter. We will continue to focus on work safety issues, but also want to introduce some general health topics to you as well. We are concerned with your well being on and off the job site. Our first featured article is “Cancer Guidelines Really Do Help”. This information is provided by the American Institute for Cancer Research, www.aicr.org. Please visit this website often for general health tips, nutritious recipes, and cancer prevention information.

Cancer Guidelines Really Do Help

by the American Institute for Cancer Research

If you think “it’s too late now” to adopt healthy habits to lower your risk of cancer, you’re in for a surprise. An important new study concludes that following the diet and lifestyle guidelines from the American Institute for Cancer Research (AICR) even fairly well after middle age can make a significant difference.

In an independent study, not funded by AICR, researchers at the Mayo Clinic Cancer Center wanted to see how following AICR’s guidelines affected cancer risk. For 13 years, they tracked the diet, lifestyle and disease rates for 29,564 women who were 55 to 69 years old at the start of the study.

The researchers looked at whether the women avoided tobacco, gained no more than 11 pounds after age 18, exercised daily, ate at least five servings of vegetables and fruits daily, got enough complex carbohydrates like whole grains, and limited alcohol, red meat, fat and salt.

A Whopping 35 Percent Risk of Cancer

The study found that women who followed only one or none of AICR’s diet and lifestyle recommendations had a 35 percent

higher risk of developing cancer than women who followed most of the recommendations. In regards to mortality, women who met only one or none of the AICR recommendations had a 43 percent higher risk of dying from cancer.

The results suggest that following guidelines involving physical activity, weight management and diet had greater effect than concentrating on any one guideline.

The median number of recommendations met by the women was four. None of the women adhered to all nine recommendations. The highest compliance was for limiting alcohol and the lowest compliance was for eating vegetables and fruits.

Guidelines for a Long Life

The AICR recommendations that the Mayo Clinic Cancer Center researchers successfully tested in this important study come from the landmark AICR expert report called Food, Nutrition and the Prevention of Cancer: a global perspective. The recommendations of the AICR report can be summarized in six practical guidelines. These simple action steps represent the best advice science currently offers for lowering your cancer risk.



American Institute for Cancer Research

AICR Diet and Health Guidelines for Cancer Prevention

- Choose a diet rich in a variety of plant-based foods.
- Eat plenty of vegetables and fruits.
- Maintain a healthy weight and be physically active.
- Drink alcohol only in moderation, if at all.
- Select foods low in fat and salt.
- Prepare and store food safely.

And always remember...
Do not use tobacco in any form.

For more information on these simple and practical guidelines, order AICR’s free brochure Simple Steps to Prevent Cancer. The phone number to call is 1-800-843-8114, ext. 111. The full report is also available on-line at <http://www.aicr.org/research/report.lasso>.

National Work Zone Awareness Week

Activities to Begin April 5, 2005

From an article by John R. McCarthy
Alabama Technology Transfer Center

The sixth annual National Work Zone Awareness Week (NWZAW) will be held from April 3 to April 9 of this year. The purpose of NWZAW is to educate the nation on work-zone related injuries and fatalities. Part of this education is informing the public of the hazards and dangers that can be encountered and avoided when driving through a roadway construction zone.

Data have been gathered on work zone crashes and fatalities by the National Work Zone Safety Information Clearinghouse (NWZSIC) to improve safety in highway work zones. The Clearinghouse is a part of the Texas Transportation Institute at Texas A&M University. Information on frequencies of work zone fatalities and fatal crashes is available on the NWZSIC website for the years 1994 to 2003, as shown in the table.

Nationwide there were 1,028 persons killed in construction and utility work zones in 2003. This figure is down from the previous year when 1,186 persons were killed. However, it is noted that nationwide the number of work zone fatalities each year from 1999-2003 is higher than each year from 1994-1998. That is, the average number of deaths nationwide has increased from 760 per year to 1,020 per year, based on these five-year analysis periods. Thus, the average number of work zone fatalities has increased 34 per cent in these five-year periods.

Another way to express these national figures is to note that from 1994-1998, a work zone fatality occurred once every 11.5 hours, while from 1999-2003, a work zone fatality occurred once every 8.6 hours.

The data are also presented by state. In Alabama, a similar trend can be seen where the last five years appear to be more severe than the previous five years. State specific frequency data can also be obtained from the NWZSIC website at: http://wzsafety.tamu.edu/crash_data/fatal.stm

These frequencies do not take into account any increase in the lane miles of work zone activities or any increase in traffic volumes. Further research is needed to investigate the effect of these exposure variables.

To reverse this trend, a continued effort is needed to improve the safety of work zones. To respond to this need, the Alabama Technology Transfer Center has joined with the efforts of the other 57 Local Technical Assistance Program centers across the country to improve work zone awareness. Promoting National Work Zone Awareness

Week is one step in this effort. Continued training on the standards and methods of traffic control through construction and maintenance work zones will be another part of this effort.

Information on worker injuries has been researched by the National Institute for Occupational Safety and Health (NIOSH). In the summary report of a past NIOSH workshop, injury prevention measures were noted as being the careful review of a traffic control plan and revising the Occupational Health and Safety Administration regulations to require adherence to the MUTCD. Data collection systems for non-fatal occupational injuries were also noted as providing insufficient detail to estimate the number of workers injured in work zones nationally. Better data collection to distinguish between injuries to motorists and injuries to workers was also recommended in the report.

To educate motorists about the hazards and dangers of work zones, the Federal Highway Administration has developed fact sheets about work zones. These sheets emphasize points such as:

- Work zone activity is significant
- Work zones cause delay
- There are more work zones in the summer
- Motorists are growing more frustrated
- Vehicle miles of travel grew at a greater rate than miles of roadway
- More work is being done on existing roads already carrying much traffic
- Night work is increasing as agencies try to manage work zone delays
- Work zone mobility and safety are linked.

Further details about each of these points is available at the FHWA website: http://www.ops.fhwa.dot.gov/wz/resources/facts_stats.htm.

National Fatality Data

Year	Number of Fatalities	Number of Fatal Crashes
1994	828	721
1995	789	665
1996	717	635
1997	693	594
1998	772	681
1999	872	772
2000	1026	966
2001	989	877
2002	1186	1035
2003	1028	919

Cont. from page 7

“You’re still not going to keep mattresses from falling off of vehicles. Granted, it would occur in lower numbers. (But) you cannot blame this on budget cuts.”

Troopers aren’t the only ones who can write tickets, said Highway Patrol spokesman Dan Marsceau. Local police and codes officers contribute, as well, he said.

In any case, Sen. Thomas said any confusion in how to enforce the law needs to be cleared up.

“It shouldn’t have to become a catastrophe before they can intervene,” Thomas said.

Lax laws

That isn’t all that Thomas thinks should be clearer.

In South Carolina, the penalties for littering can far outweigh the penalties of allowing dangerous materials to fall in the path of motorists.

A citation for throwing a cigarette butt out the window equates to a minimum \$200 fine, yet the fine for an unsecured-load violation is a maximum \$100. The complexities involved in the laws, Arnold said, makes it so that knowing which ticket to write for what can be confusing.

A ticket can be issued for littering if, say, a mattress falls off a truck, a fine that can go as high as \$1,087. Arnold said that distinction, if clear to officers and the public, could help to discourage unsecured loads.

However, litter laws won’t always help as a stronger deterrent. If, for instance, a load of logs were to fall into the road, Arnold said only the \$100 fine could be assessed under the unsecured-load law because items relating to logging, farming, manufacturing, mining and other particular occupations are exempt from littering laws.

Thomas said he will introduce

legislation in January to bring laws governing road debris more in line with harsher penalties of litter laws. “What’s amazing is that to lose an unsecured load on the highway is actually less than just throwing a cigarette butt out of the car,” Thomas said. “That needs to be changed rather dramatically.”

And the penalties for creating road debris could cost a driver more than just money.

After the newspaper apprised Thomas of an effort in Florida to mark road debris violations against a motorist’s driving record, Thomas said he will introduce a similar provision in January.

Cleaning up

And it’s more than once a week in South Carolina that crews responsible for clearing road debris, both in interstate driving lanes and on road shoulders, see work that needs to be done, said Jason Allison, assistant district engineer for the state Department of Transportation’s Upstate district.

The main tool for cleaning debris is the transportation department’s team of “incident responders.”

Their job is to patrol the interstates, said Pete Poore, a department spokesman.

In the Upstate, the incident responder program covers the entire South Carolina stretch of I-85. Allison said he has seven 20-mile routes that run seven days a week during daylight hours. It takes about 30-45 minutes to complete a route, but that’s only if the responders don’t have to stop for other tasks.

Last year, incident responders cleared up 3,963 cases of road debris, 1,771 of the cases along I-85 alone, more than double the amount of any other region.

One contributor to that number is the fact that the Upstate is responsible for

How To Prevent, Avoid Road Debris

- ▶ Make sure your truck bed is covered and secured. Make sure tarps are tight. It takes only a small piece of metal, wood or concrete to create a safety hazard.
- ▶ If you see hazardous debris in traffic lanes, don’t stop and pick it up. Call *SCHP.
- ▶ Make it a rule that nothing gets tossed from the windows of your car.
- ▶ Join an Adopt-A-Highway program devoted to keeping a certain stretch of road clean. Call 1-888-226-9694 and ask for a program coordinator.
- ▶ Drive defensively by maintaining a safe following distance. Buckle up and always keep your hands on the wheel, because you might have to swerve to avoid road debris.
- ▶ Stay Alert. Don’t talk on cell phones, eat or use the radio dials when driving. Road debris can appear within seconds.

Source: Removal Of All Debris Safely activist group

more interstate traffic than any other region. Along less-urban stretches of interstates 385, 26, 20 and 95, incident responders aren’t on patrol.

Even if there were no law enforcement and no roadside-assistance patrols, the problem could be solved if motorists carried loads safely. Reaching a respectable level of awareness, however, will take work, Arnold said.

After all is said and done, Jemima Sanon must try to find meaning in her cousin’s death. As she searches for it, she’s compelled to ask one more thing.

“Please, think about the lives of others.”

New Transportation Faculty

Dr. Jennifer Ogle joined the faculty of the Department of Civil Engineering at Clemson University in January 2005. Prior to joining Clemson University, Dr. Ogle worked as a Research Engineer at the Georgia Institute of Technology for more than six years participating in research primarily in the areas of safety, crash analysis, and the use of in-vehicle instrumentation (event data recorders) for advanced data collection. While at Georgia Tech, Dr. Ogle was a Co-Principal and Principal Investigator for two large instrumented vehicle studies sponsored by the National Highway Traffic Safety Administration and Federal Highway Administration. Both projects used vehicle instrumentation technologies to track hundreds of general population vehicles in Atlanta. The studies had varied objectives; one sought to determine what types of driver speeding behavior most likely lead to higher incidences of crash involvement, and the other sought to determine changes in driver behavior given insurance incentives. Dr. Ogle developed an array of skills during the administration of these projects, including management and manipulation of large datasets—one study alone will generate over one million trip files in the period of a year.

Prior to joining the Georgia Institute of Technology, Dr. Ogle worked for the Texas Transportation Institute where she gained invaluable experience working directly with the Texas Department of Transportation to assist with the TransGuide Model Deployment Initiative. Dr. Ogle developed GPS data collection tools to collect and assimilate travel time data for arterials to incorporate into the real-time data system. She also worked with the system integrator to determine sensor locations for the toll-tag travel time system. Additional work

for the Texas Department of Transportation included training for DOT employees in site safety evaluations. To complement this experience, Dr. Ogle has developed a depth of knowledge in vehicle tracking and crash detection technologies, and has designed several data collection systems for various research projects.



Dr. Ogle has taught courses in transportation systems and design, and several special problems courses within The School of Civil and Environmental Engineering. Dr. Ogle is currently developing courses in transportation safety, crash reconstruction, and survey methods. Dr. Ogle received her B.S. and M.S. degrees in Civil Engineering from the University of Tennessee in Knoxville, and her Ph.D. from the Georgia Institute of Technology. Her memberships include the Transportation Research Board Committee on Statistics and Statistical Software in Transportation Research A5011 (Secretary), Institute of Transportation Engineers, Society of Automotive Engineers, and the American Society of Civil Engineers. Dr. Ogle became a Fellow of the Eno Foundation in 1995, and also maintains membership in Chi Epsilon and Tau Beta Pi. Dr. Ogle was awarded the School of Civil and Environmental Engineering Outstanding Research Faculty Award for 2001-2002, and Georgia Tech Woman of Distinction in 2004.

Information Request and Address Change Form

Videos and publications from our library are available on-line at www.ces.clemson.edu/t3s.

The videos and publications are free to individuals employed by any city, county or state government agency in South Carolina. You can obtain a free single copy of most publications, or borrow a copy of one of our “for loan” publications and videos.

Transportation Technology Transfer Service

Civil Engineering Department	Phone: 864-656-1456
Clemson University, Box 340911	Toll free: 888-414-3069
Clemson, SC 29634-0911	Fax: 864-656-2670

Name: _____

Title: _____

Address: _____

Phone: _____ Fax: _____

This is a new address

Please add my name to your mailing list

SPEED BUMP

Dave Coverly



Are We There Yet? is published by the South Carolina Transportation Technology Transfer Service (T³S) for the benefit of county and municipal government agency personnel in South Carolina. T³S, administered by the Clemson University Civil Engineering Department, is the Local Technical Assistance Program (LTAP) center for SC. T³S is part of a nationwide network of LTAP centers established by the Federal Highway Administration (FHWA) in cooperation with state transportation agencies. T³S is jointly funded by FHWA and the South Carolina Department of Transportation (SCDOT). The views, opinions, and recommendations contained in the newsletter do not necessarily reflect the views of the FHWA or the SCDOT.

How to Contact Us

SC Transportation Technology Transfer Service
Civil Engineering Department
Clemson University—Box 340911
Clemson, SC 29634-0911
Phone: 888-414-3069 Fax: 864-656-2670
E-mail: t3s@ces.clemson.edu
Web: www.ces.clemson.edu/t3s

Director:	Jim Burati	864-656-3315
Program Manager:	Sandi Priddy	864-656-6141
Designer/Assistant Editor:	Brian Verhoeven	864-656-6141

Nonprofit Organization
U.S. POSTAGE PAID
Clemson, SC
Permit No. 10

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