Above: Geoblocks are installed and cut to fit a roadway pulloff area in Tennessee’s Great Smoky Mountains National Park.

GEOTECHNOLOGY INCREASES ROADWAY SAFETY IN GREAT SMOKY MOUNTAINS NATIONAL PARK

The use of geotechnology to build stabilized grass roadway pulloff areas along the Gatlinburg Spur of the Foothills Parkway in Tennessee’s Great Smoky Mountains National Park has increased safety along the roadway, while minimizing the impact on the surrounding environment. Owned and maintained by the National Park Service, the Gatlinburg Spur of the Foothills Parkway is a section of US 441 and US 321 that runs between Gatlinburg and Pigeon Forge, Tennessee. The roadway has grass rather than paved shoulders, following standard design for Park Service roads and parkways. However, unlike typical park roads, the Spur has a large volume of high-speed traffic generated by tourist attractions in Gatlinburg and Pigeon Forge.

"Because of the combination of high volumes of traffic, excessive speeds, changes in geometric configuration, and tourists unfamiliar with the roadway, the number of accidents in the area is high," notes Martin Hatcher of the Federal Highway Administration’s (FHWA) Eastern Federal Lands Highway Division office. There were very few areas along the roadway where motorists involved in accidents could safely pull off and wait for help to arrive, and where park rangers could pull off to assist them. To solve the problem, the Park Service asked the Eastern Federal Lands Division to design and construct safe and stable pulloff areas to be used by motorists and park rangers.

FHWA constructed eight soil stabilized pulloff areas in 2004. The pulloffs were built at sites designated by the Park Service that are prone to recurring traffic accidents. They were...
PUBLIC ETICS

Public officials from the White House to city and county offices are in the news for ethics violations and worse. A number of them are protesting their innocence. It's obvious that ethics can make or break a career in public service, so it's important to know what's involved. What are the rules? Who is governed by them? What can happen to someone accused of an ethics violation? Ethics can be confusing and intimidating. Quite often, we hear stories about people getting into ethical trouble without realizing it. There are a few simple logical rules to follow in order to stay out of trouble.

The first is, CASH YOUR CHECK. CASH YOUR CHECK. What you are paid and your other compensations, such as vacation and sick leave, are all you are entitled to for doing the job you signed on to do. Some people feel that they don't get paid enough for what they do. If you feel this way, talk to your boss, apply for a raise or promotion, or look elsewhere. You cannot accept anything of value as a gift just for doing your job. You also cannot accept favors from anyone who has pursued or is pursuing a contract with your agency.

It is okay to be friendly with contractor or consultant personnel. It is okay to socialize with people who have contracts with your agency, as long as you don't accept gifts or favors from them. For instance, you can play golf or go fishing with someone who has a contract with your agency, but pay your own greens fees and share your end of the cost of the fishing trip. There are times when you could be put into an ethical bind because of a job offer for when you retire or for your relatives. DO YOUR JOB. Competence is another area of concern for public employees. You must do work you are qualified for or supervise the people doing the work. Don't do work outside your area of expertise unless it is a learning process, and you are supervised by someone who is teaching you a trade or area of competence. Possibly the most ethical thing you can do if you are a supervisor is to let the people who should be doing the work do the work. Don't micromanage, second guess or take authority away from your subordinates.

You cannot ask for the promotion. If you don't ask, it may look like you are trying to hide something. You may wonder why there is a problem with supervising your relatives. If you are in business and hire family, it may be a great idea. If you are dealing with public funds, the rules are not so liberal.

Unfortunately, people are all to willing to believe that public employees are incompetent, crooked or both. Don't let your name be associated with any unethical behavior. Your reputation is precious and very difficult to recover once it has been damaged.

LTPP PRODUCTS 2006

Since 1987, the Federal Highway Administration’s (FHWA) Long-Term Pavement Performance (LTPP) program has collected and analyzed data across North America to better understand how and why pavements perform the way they do. This data has resulted in a range of products and tools to meet today’s pavement technology needs. The new LTPP Product List (Publication No. FHWA-HRT-06-119) outlines the many products available in such categories as Maintenance and Rehabilitation; Pavement Management Systems, and New and Reconstructed Pavements. LTPPBind 3.1, for example, is a Microsoft Windows®-based program that can help highway agencies select the most suitable, possibly effective, Superpave™ asphalt binder performance grade (PG) for a particular site. The software features a database of high- and low-air temperatures for nearly 8,000 North American weather stations, enabling users to select the binder PG based on temperature conditions at the site, desired level of risk, and different levels of trafficking, loading and speed.

The Distress Identification Manual for the Long-Term Pavement Performance Program (Publication No. FHWA-RD-03-031), meanwhile, provides a consistent, uniform basis for collecting distress data. The manual contains a common language for describing cracks, potholes, rutting, spalling, and pavement distresses monitored by the LTPP program. It features photographs and text that clearly label, describe, and illustrate each type of distress. Many States have adopted the procedures established in the manual.

Users around the world can access the LTPP data through the LTPP Standard Data Release, which makes the world’s largest pavement performance database available annually in Microsoft Access® format as a five-CD set or on a single DVD. Data can also be obtained through DataPave Online (http://www.datapave.com), a user-friendly application that includes inventory, materials testing, pavement performance monitoring, climate, traffic, maintenance, rehabilitation, and seasonal testing data from the more than 2,500 LTPP pavement test sections throughout North America.

For more information on LTPP products or a copy of the 2006 Product List, visit www.fhwa.dot.gov/ltpp/ProductList.cfm. For more information on LTPP products or a copy of the 2006 Product List, visit www.fhwa.dot.gov/ltpp/ProductList.cfm. The Distress Identification Manual is available at www.fhwa.dot.gov/pavement/ltppresource.cfm. To learn more or for information on obtaining LTPPBind 3.1, contact the LTPP Customer Support Service Center, 202-493-3035 (email: ltppinfo@fhwa.dot.gov).

“Elegantly pleasing, environmentally sensitive solutions are critical when constructing features for the National Park Service.” — Martin Hatcher (FHWA)

Typically located at the beginning or end of a horizontal curve or near some feature restricting the sky zone (the space from the edge of the travel lane to the nearest impassable object), the pulloffs were spaced along the length of the Spur, with four located on the northbound side and four on the southbound side. All of the pulloffs are approximately 21-m (70-ft) long, with a 9-m (30-ft) taper on the approach, a 6-m (20-ft) full width area, and a 6-m (20-ft) taper on the exit end. The pulloffs are capable of holding two cars. “The intent was to create a safe pulloff for emergency use and not to create a permanent parking area to be utilized by tourists and fishermen,” says Hatcher.

To determine the best practice for future projects, FHWA used a different stabilization method for each pulloff area. All eight areas were built with a woven geotextile fabric on the subgrade for separation. The backfill consisted of a mixture of aggregate and topsoil. The first area was constructed as a control lot, using only geotextile and the aggregate-topsoil mixture typically used on parkway shoulders. A combination of geosynthetic systems, such as a geoweb made out of polyethylene and sewn together to produce a honeycomb structure; cellular block panels or geoblocks made out of recycled polyethylene; a porous ring and grid system constructed from high-density polyethylene; and a fiberglass grating system, were installed on top of the geotextile fabric and used for soil stabilization in the other seven areas. The pulloffs were then seeded for turf so that they would blend into the environment.

“Since construction, “the pulloffs have stabilized the areas and are holding up well,” says Ken Thornton of FHWA. “All of the systems appear to be viable,” adds Hatcher. “Each has its place depending on the desired application.” For example, the ring and grid system offers faster and easier construction, while the fiberglass system provides more durability for high-traffic areas. Costs ranged from $83.50 per square m ($95.40 per square yd) for one type of porous synthetic ring and grid system to $204.00 per square m ($230 per square yd) for another type of porous synthetic ring and grid system. Each of the turf-covered pulloffs blends in well with its environment. “Aesthetically pleasing, environmentally sensitive solutions are critical when constructing features for the National Park Service,” notes Hatcher. “It is recommended that one or more of these systems be tried when soil stabilization in an environmentally sensitive situation is required.”

For more information on the stabilized grass pulloff areas along the Gatlinburg Spur, contact Martin Hatcher at FHWA, 865-453-7123 (email: m.hatcher@fhwa.dot.gov).
AUDITS HELP STATES EXAMINE ROAD SAFETY

More than 42,000 people are killed every year on our Nation’s road network. State and local transportation agencies are identifying different approaches to improving safety in their jurisdictions. One proactive approach is for transportation agencies to anticipate the crash potential and safety performance of the road network and identify potential safety issues before a crash pattern develops. To implement this approach, transportation agencies can undertake road safety audits (RSAs). Road safety audits are formal safety performance examinations of existing or future roads or intersections by independent audit teams. At the Federal Highway Administration (FHWA), officials are working to develop basic knowledge and tools for agencies interested in conducting RSAs.

Transportation agencies at the State, county, and city levels have been performing road safety audits since 1997. To carry out an audit, an agency starts by identifying the existing or future road or intersection to be assessed and then selecting a team qualified to perform the audit at that location. The team then evaluates the safety of the road or intersection and prepares a brief report identifying potential safety issues. The agency or owner of the road or intersection responds to the issues identified and lists the actions that will be taken or documents the reasons for not implementing a suggestion. Issues identified by RSAs can range from the very simple, such as the need to trim vegetation, to the more complex, such as the planning of the layout of roadway networks.

In addition to saving lives, RSAs may offer potential cost savings. Officials in Grand Rapids and Detroit, MI, have performed economic analyses of suggestions resulting from RSAs and consistently have found positive benefit-to-cost ratios. In South Carolina, the State department of transportation saved thousands of dollars after its first audit by correcting a design problem at the audit site.

The cost of performing an audit can vary and depends on the complexity and scope of the project. Agencies can save money by designating RSA teams that include experts from nearby jurisdictions, in exchange for providing their own experts to perform RSAs on neighboring roads. Alternatively, agencies can hire a consultant, which can cost from nearby jurisdictions, in exchange for providing their own experts to perform RSAs on neighboring roads. Alternatively, agencies can hire a consultant, which can cost thousands of dollars after its first audit by correcting a design problem at the audit site.

The cost of performing an audit can vary and depends on the complexity and scope of the project. Agencies can save money by designating RSA teams that include experts from nearby jurisdictions, in exchange for providing their own experts to perform RSAs on neighboring roads. Alternatively, agencies can hire a consultant, which can cost thousands of dollars after its first audit by correcting a design problem at the audit site.

For more information on RSAs, visit www.roadwaysafetyaudits.org or contact: Louisa Ward 202-366-2218 louisa.ward@fhwa.dot.gov

HYDRAULIC SYSTEM HAZARDS

The main hazards to consider when working with hydraulic systems include crushing, burns, being hit by flying objects, and high pressure injections.

CRUSHING - Items that are raised by hydraulic systems can come crashing down if the system loses pressure, fails, or if the controls are bumped. To prevent crushing whatever is under the equipment, lock everything in the raised position and discourage riders who could bump equipment controls. Remember: hydraulics need a running engine to raise equipment, but equipment can descend without the power being activated.

BURNS - Equipment using hydraulic fluid operates at high temperatures. If a hose breaks, the result can be severe burns.

FLYING OBJECTS - Fluid sprays due to a large hole or high pressure can cause equipment parts to tear off and become airborne. Watch out for flying shards.

CHECKING FOR LEAKS: Hold a piece of cardboard or paper above a hydraulic hose to identify a leak location; never rub your hand along a hose. The general rule for leak testing is to shut down the machine and drain the pressure from hoses before inspection. Eye protection should always be used.

IN A DAILY EQUIPMENT CHECK, LOOK FOR:
- Proper fluid levels, according to manufacturers’ specifications
- Leaks, damage, or wear on lines, hoses, and fittings
- Twists or abnormal contours on hoses

SOME HYDRAULICS SAFETY RESOURCES:
- A Lesson Plan on Hydraulic System Safety (Kansas State Extension) www.cdc.gov/nasd/docs/d000891/d000891.pdf
- Hydraulic Systems Safety facts and proper procedures (NASD) www.cdc.gov/nasd/docs/d000801-d000900/d000891/d000891.pdf
- Some Hydraulics - HYDRAULIC FLUID INJURIES CAN CAUSE GANGRENE IF NOT IMMEDIATELY TREATED BY A PHYSICIAN.

HIGH PRESSURE INJECTIONS
Household water comes out of the faucet at around 40 pounds per square inch (psi). Hydraulic systems operate at 2,000 psi or higher. A pinhole-sized leak at that pressure can cause hydraulic fluid to penetrate a person’s skin and even some safety gloves as well. Hydraulic fluid injuries can cause gangrene if not immediately treated by a physician. (To view a photo of a finger that was injected with hydraulic fluid, visit http://www.flagSAFE.ufl.edu/nni/injury01.html The finger was lanced in an attempt to save it and the hand.)

HYDRAULIC OIL SPILLS
- Hydraulic oil spills
- Leaks, damage, or wear on lines, hoses, and fittings
- Equipment positioned along a hose. The general rule for leak testing is to shut down the machine and drain the pressure from hoses before inspection. Eye protection should always be used.

In a daily equipment check, look for:
- Proper fluid levels, according to manufacturers’ specifications
- Leaks, damage, or wear on lines, hoses, and fittings
- Twists or abnormal contours on hoses

For more information on RSAs, visit www.roadwaysafetyaudits.org or contact: Louisa Ward 202-366-2218 louisa.ward@fhwa.dot.gov

This article was adapted from Safety News and Notes, Vol 7, No 2, Feb 2006.
A SIMPLE WAY TO PREVENT BLINDZONE ACCIDENTS

This article was written by George Platzer, a specialist in rear-view mirror design, and produced by the Society of Automotive Engineers. Give this a try. You won't believe what a difference changing the adjustment of your mirrors can make in eliminating blind spots. (From: The Road Ahead, June 2006).

THE BLINDBNESS HAZARD

Most of us learned about blindzones in a driver education class, and to look over our shoulders before changing lanes. Your first real encounter with a blindzone was probably when you tried to change lanes and got a horn blast in your ear. The adrenaline instantly kicked in as you reversed your maneuver. Your heart jumped to your throat, and you suddenly felt hot as you realized you had just made a dangerous mistake.

You asked yourself, “What happened? Why didn’t I see that car? Did I forget to look?”

Lots of people make that mistake every year, and sometimes it results in more than just a horn blast. The National Highway Traffic Safety Administration (NHTSA) has studied a category of accidents they call Lane Change/Merge (LCM) crashes. They estimate there are 630,000 LCM crashes every year, and 225 fatalities annually. A NHTSA study found that about 60% of drivers involved in LCM crashes did not see the other vehicle, and about 30% of drivers misjudged the position or speed of the other vehicle.

All LCM crashes cannot be blamed on the blindzones, but blindzones are extremely important. They are not well understood by the average driver, yet they are involved in every LCM maneuver.

HOW BLIND ZONES ARE CREATED

To understand why the blindzones are important, let’s see how they are created. Most passenger cars are equipped with one inside mirror and two outside mirrors. The inside mirror provides the driver with the widest field of view and by far the most information about traffic to the rear. For this reason, drivers should consider the inside mirror their primary mirror.

First, turning to look into the blindzones, which can be uncomfortable and annoying, is no longer necessary.

Second, only a brief glance at the mirror is required to view the blindzone, as opposed to the longer time required when turning your head. At highway speeds, turning takes your eyes off the road for about 100 feet.

Third, glancing at the mirror leaves the forward scene in your peripheral vision, while turning your head completely eliminates the forward view.

Fourth, the blindzones can be easily included in your visual scanning.

Fifth, at night, glare from the outside mirrors is virtually eliminated. The reason for this is that a following car’s headlamps are not visible until the car moves into the blindzone. This is similar to the rule used when passing, as you realize you are in the blindzone, as opposed to the longer time required when turning your head.

You should next check to see that the blindzones are truly eliminated. From the normal driving position, watch a car as it passes you. It should appear in the outside mirror before it leaves the inside mirror, and it should appear in your peripheral vision before leaving the outside mirror.

This is your proof that the blindzones have been eliminated and that your mirrors are correctly set.

The BGE Setting requires turning the field of view of each outside mirror outward by about 15 degrees from the Blindzone Setting. For the driver’s side mirror, this can be done by placing your head against the side window as shown in Drawing D and then positioning the mirror to just see the side of the vehicle. Do the same with the passenger’s side mirror, but position your head at the middle of the car. You should check to see that the blindzones are truly eliminated. From the normal driving position, watch a car as it passes you. It should appear in the outside mirror before it leaves the inside mirror, and it should appear in your peripheral vision before leaving the outside mirror.

The Blindzone Setting and BGE Setting are both useful. For most driving situations the BGE Setting is best. Occasionally, the Blindzone Setting is required. This continued from adjacent page

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MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

technote - winter 2007

P7
The following courses have already been scheduled for 2007. More classes are also being added on a regular basis. Act now to make sure that you or your constituents get a seat before they fill up! For more information or to schedule a class call Janette Prince at (301) 403-4623 or visit our website at http://www.enre.umd.edu/mttcCenter.

**BASIC DRAINAGE**
Edwin Steffox
February 10, 2007, 8:30 am – 3:00 pm
College Park, MD
$75 All Registrants
CEU’s: 0.0

This course emphasizes the importance of good drainage with discussions of water and its effects on roads, problems caused by improper drainage, and ways to handle these problems. It covers types of drainage facilities, ranging from ditches, culverts and subsurface inlets and end structures, their uses, materials, installation, and maintenance. It also introduces geosynthetic drainage applications.

**SIGNAL WARRANT & INTERSECTION CONTROL ANALYSIS**
February 28, 2007, 9:00 am – 4:30 pm
College Park, MD
$95 Maryland State Government Only
$125 State, Federal, Private, and Out-of-State
CEU’s: 0.0

This course will cover the eight MUTCD signal warrants: Warrant 1: Eight-Hour Vehicle Volume, Warrant 2: Four-Hour Vehicle Volume, Warrant 3: Peak Hour, Warrant 4: Pedestrian Volume, Warrant 5: Vehicle and Pedestrian Count Correlation, Warrant 6: Two-Way Intersection, Warrant 7: Crash Experience, Warrant 8: Roadway Network. The course will also cover warrants for four-way stops as well as alternatives to signal control. The discussion of the advantages and disadvantages both in the terms of capacity and safety of various types of traffic controls will be presented. The basis for both the installation and the removal of traffic control devices will be covered.

As part of the course, workshop problems will be given to the class participants. The class will be provided intersection field data and will determine if signals are warranted for the sample intersections. After completing the workshop, MUTCD signal warrant analysis software will be demonstrated and the workshop problems will be evaluated based on microcomputer analysis.

**PAVEMENT MANAGEMENT SYSTEMS FOR LOCAL GOVERNMENTS**
Alan Kercher
March 1, 2007, 8:30 am – 3:00 pm
College Park, MD
$95 Maryland Local Government Only
$125 Maryland State Government
$150 Federal, Private and Out of State
CEU’s: 0.0

Pavement Management Systems (PMS) provide a systematic way for local officials to answer basic questions about their roadway system to guide future improvement and investment. Commitment to a PMS can gain a clear insight into the condition of their roadway system, how it is changing, and what road improvements ought to be a priority, as well as a general estimate of the cost of priority improvements, based on the specific goals and priorities of local leaders.

The Roadway Surface Management System (RSMS) is a network PMS, intended to provide an overview and rough estimate of a roadway system’s condition and the approximate costs of future improvements. Participants will learn how to use RSMS software to define a roadway network, assign the condition of the road sections, program repair and maintenance alternatives, develop cost estimates, prioritize rehabilitation and maintenance needs, and get the most out of the RSMS reporting capabilities.

We will teach you new tips and will show you how to load the software, input data, conduct a condition survey, modify the software to meet local conditions and practices, and to generate analyses and reports.

**TRAFFIC CALMING**
Dane Ismart
March 20, 2007, 8:15 am – 4:00 pm
College Park, MD
$100 Maryland Local Government Only
$175 Maryland State Government
$195 Federal, Private, and Out-of-State
CEU’s: 0.8

Traffic calming is a term used to describe techniques that reduce the number, capacity, and speed of vehicles to which drivers respond when it results in improved traffic operation and reduces accidents. Other benefits include reduced delay, improved traffic flow, increased capacity, and improved fuel economy. This course covers not only why, but also how to manage access, from a policy, legal, and design perspective.

**ASAHL RoadS common Maintenance problem**
Ed Steffox
April 24, 2007, 8:30 am – 1:30 pm
College Park, MD
$50 All Registrants
CEU’s: 0.0

This course discusses the advantages and appropriateness and effectiveness of various asphalt traffic calming measures as well as the specifics of designing such measures to achieve their desired effect. Audio-visual presentation materials will be used, and attendees will participate in interactive workshops where case studies are evaluated and appropriate traffic calming solutions are developed. Upon completion of the workshop sessions, participants will present their solutions to the class. The goal of the course is that participants will leave, based on their understanding of what traffic calming is, and what issues are typically encountered when using traffic calming techniques.

**PREVENTIVE Maintenance**
Ed Steffox
April 11, 2007, 8:30 am – 12:30 pm
College Park, MD
$50 All Registrants
CEU’s: 0.0

This course covers preventive maintenance treatments such as chip seals, slurry seals, and microsurfacing and discusses when and where each technique could be effective. It presents application methods, including preparation, materials, equipment, operations and safety, along with practical tips on how to avoid trouble.

**ACCESS Management**
Dane Ismart
April 17-18, 2007, 8:00 am – 4:00 pm
College Park, MD
$195 Maryland Local Government
$275 Maryland State Government
$285 Federal/Private/Out-of-State
CEU’s: 1.2

Traffic engineers have long recognized that eliminating unexpected events and separating decision points simplifies the driving task. Access control reduces the number, complexity, and spacing of events to which drivers respond, and reduces accidents. Other benefits include reduced delay, improved traffic flow, increased capacity, and improved fuel economy. This course covers not only why, but also how to manage access, from a policy, legal, and design perspective.

**Highway Capacity analysis**
Dane Ismart
May 15-17, 2007, 8:15 am – 4:30 pm
Linthicum, MD
$250 Maryland Local Governments
$395 Maryland State Government
$430 Federal, Private, and Out-of-State
CEU’s: 2.2

This course provides a working knowledge on the basics of capacity analysis and the use of the Highway Capacity Manual (HCM) and Highway Capacity Software. The course includes lectures, sample problems. Topics addressed will cover the analysis of a wide range of facilities from freeway systems to signalized and unsignalized intersections. Design issues and their effect on capacity will be covered as well as the major changes in the latest version of the Highway Capacity Software. In this course you will hear how the methodologies were developed.

**Asphalt resurfacing**
Ed Steffox
May 22, 2007, 8:30 am – 12:30 pm
College Park, MD
$50 All Registrants
CEU’s: 0.0

This course reviews the various asphalt mixes, their components and their uses. Asphalt resurfacing procedures are covered, including preparation, material, equipment, operation and safety. Special emphasis is placed on proper selection and compaction of the asphalt overlay. Superpave mix design is discussed.

**SITE impact analysis**
Dane Ismart
June 6-7, 2007, 8:00 am – 4:00 pm
Linthicum, MD
$200 Maryland Local Government
$275 Maryland State Government
$325 Federal, Private, and Out-of-State
CEU’s: 1.2

Participants will learn the standard techniques for estimating the traffic impacts of both small and large site developments. Content includes procedures for land use forecasting, trip generation, trip distribution and assignment, site impact layout design, and impact evaluation. The workshop will be conducted with manual procedures, but computer software packages suitable for site impact will also be demonstrated.

**Unpaved gravel road Maintenance**
Ed Steffox
June 14, 2007, 8:30 am – 12:30 pm
College Park, MD
$50 All Registrants
CEU’s: 0.0

This course addresses basic maintenance techniques for unpaved roads. Topics include road materials, grading or draging, reshaping or regrading for proper crown, resurfacing, stabilization for full-depth reclamation, and dust control, with an introduction to road management techniques.

**Traffic engineering short course**
Mr. Joseph Cutso
Mr. Tom Hicks
Mr. Woody Wood
Mr. Dan Simons
Mr. Gerry Alexander
Mr. Warranah Williams
Mr. Richard H. Sherrill
June 14-20, 2007
Linthicum, MD
$300 MD Local Government
$650 MD State Government
$700 Federal/Private/Out-of-State
CEU’s: 0.0

This five-day short course covers many aspects of traffic engineering, including design, data analysis, operation and management. Also, related factors, such as road use characteristics, public influence and traffic calming are addressed in the course. The course is designed for persons with an engineering background and/or traffic engineering responsibilities in a related field. Junior level traffic engineers, transportation planners, highway designers, city...
Consider Adding Breakaway Supports When You Replace Signs

In December, we received word from Nicholas Artimovich, Manager, Engineering, in the Federal Highway Administration’s Office of Safety Design, suggesting we advise you who deal with retrofit-efficiency improvements programs to consider upgrading non-breakaway sign supports of the same kind. We asked if we could use his email as an article in the January/February issue. He begins with some background:

Breakaway supports have been required on the National Highway System since 1998 - that is not news. However, the 2000 MUTCD, which, of course, applies to roads in the United States, revised the wording from “should” to “shall” regarding the use of breakaway sign supports. This is spelled out in Section 2A.19 of the MUTCD:

“Ground-mounted sign supports shall be breakaway, yielding, or shielded with a longitudinal barrier or crash cushion if they are within the clear zone.

“Breakaway sign supports shall remain in place, be breakaway, yielding, or shielded with a longitudinal barrier or crash cushion if they are within the clear zone.”

In 2000 MUTCD, we see the establishment of a target date for implementation on certain roads:

SECTION 2A.19 LATERAL OFFSET

crashworthiness of sign supports for roads with posted speed limit of 80 mph (130 km/h) or higher; and

January 17, 2013.

On roads posted less than 30 mph there is no target date, but a program to replace non-breakaway supports within the clear zone needs to be in the highway agency’s long-term plans for complying with MUTCD changes. As I noted above, highway agencies ought to consider installing breakaway supports at the same time that the sign faces are replaced to comply with retroreflectivity requirements. We do not want cities and counties going through all the effort to upgrade their sign faces only to be told by the errant vehicle. “Yielding” refers to a sign support that bends, allowing a vehicle to run over it. Many sign supports are yielding at low speeds and breakaway at high speeds.


Finally, from our brochure on breakaway sign supports:

What does breakaway mean?

“Breakaway” refers to a sign support that, when struck by a vehicle, separates from its base and is knocked ahead of or up over the errant vehicle. “Yielding” refers to a sign support that bends, allowing a vehicle to run over it. Many sign supports are yielding at low speeds and breakaway at high speeds.

ConSTRUCTION MATHEMATICS

Ed Stallfox

August 9, 2007, 8:30 AM – 3:00 PM

College Park, MD

$50 All Registrants

CEU’s: 0.5

Construction inspectors may need to brush up on math skills specifically related to construction inspection, especially repair and maintenance, area, volume and conversions. The class is a good refresher, and excellent preparation for the Construction Inspection class.

WINtER MAINTENANCE

Ed Stallfox

September 13, 2007, 8:30 AM – 3:00 PM

College Park, MD

$50 All Registrants

CEU’s: 0.0

This course covers all aspects of winter operations - planning and organizing, methods of snow and ice control, salt usage, and winter equipment maintenance. Lesson will include usage of snow maps and formal snow plans.

PEDESTRIAN AND BIcycLIC ACCOMMODATION

Dane Ismart

September 18, 2007, 8:30 AM – 4:00 PM

Linthicum, MD

$75 All Registrants

CEU’s: 0.0

Many communities in the United States were not designed for pedestrian and bicycle travel. However, today walkability and bike-ability are viewed as signs of a livable community and encourage physical activity. The goal is to create an environment that encourages people to walk and bike for transportation, recreation and exercise. This workshop provides current information on the design, operation and maintenance of successful pedestrian and bicycle facilities. Emphasis is placed on making participants aware of the characteristics and needs of pedestrians and bicyclists and on the importance of an interdisciplinary approach to planning and implementing pedestrian and bicycle programs.

INTRODUCTION TO GEOSYNTHETICS

Ed Stallfox

October 7, 2007, 8:30 – 12:00 PM

College Park, MD

$25 All Registrants

CEU’s: 0.0

This course is an introduction to geosynthetics, beginning with a discussion of geosynthetics, what they are, how they are made and how they can be used in a road maintenance program. The course then looks at other geosynthetics and their road system uses, including geotextiles, geocells and geosynthetic, presenting new materials with new applications.

SIGNAL WARRANT & iNTERSECTION CONTROL ANALYSIS

Dane Ismart

October 16, 2007, 9:00 AM – 4:30 PM

College Park, MD

$95 Maryland Local Government Only

$125 Maryland State Government

$150 Federal, Private, and Out-of-State

CEU’s: 0.0

This course will cover the eight MUTCD signal warrants:

Warrant 1: Four Hour Vehicle Volume

Warrant 2: Four-Hour Vehicular Volume

Warrant 3: Peak Hour

Warrant 4: Pedestrian Volume

Warrant 5: School Crossing

Warrant 6: Coordinated Signal System

Warrant 7: Crash Experience

Warrant 8: Roadway Network

The course will also cover warrants for four-way stops as well as alternatives to traffic control signs. A detailed discussion of the advantages and disadvantages of both in the terms of capacity and safety of various types of traffic controls will be presented. The basis for bothrix, installation, and the removal of traffic control devices will be covered.

As part of the course, workshop participants will be exposed to the class. The class will be provided interaction field data and will determine if signals are warranted for the simple intersection. After the completion of the workshop, MUTCD warrant analysis will be demonstrated and the workshop programs will be evaluated based on microcomputer analysis.