technotes

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MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

Local Technical Assistance Program (LTAP)
University of Maryland at College Park

www.mdt2center.umd.edu

INSIDE:

Greenbelt Gets Greener

The city of Greenbelt has another reason to celebrate its name; the city's Department of Public Works hosted an open house and ribbon cutting ceremony on Saturday April 25 for its brand new "green" building. This building was a collaborative effort to recycle materials from the previous buildings demolition, use recycled building materials, reduce energy consumption, and conserve the nearby environment including a stream that runs along the property. The exterior of the building is all about energy conservation; a white roof reflects the summer heat, mirror-glazed windows reflect heat rays, and low-E glass prevents heat loss in the winter.

Just like the exterior, the interior of the building focuses on energy-saving features, for example the locker rooms house geothermal heat and air conditioners, automatic light sensors, low-flow toilets and showers, automatic flushing toilets, recycled ceramic tile, and recycled stainless steel sinks. The offices also feature geothermal heat and air conditioners, self-adjusting fluorescent light fixtures with sensors, large windows to bring in natural light, recycled carpet and vinyl tile, adhesives with low and/or no volatile organic compounds (VOC), and exposed ceilings with recycled steel.

The city of Greenbelt has not only given an environmentally friendly building to the community but they have made this building a beautiful one!

The public works department is responsible for the construction, maintenance, and preservation of the physical condition of the city of Greenbelt. Their responsibility includes: street maintenance; refuse and special trash collection; snow removal; leaf, brush and yard waste collection; grass mowing; street, sidewalk, curb and gutter repair; road signage and traffic lane marking; fleet maintenance; beautification landscaping, tree planting and grounds maintenance; intra-city transit (Greenbelt Connection); ball field and park facilities maintenance; recreation facilities, maintenance; and oversight of recycled waste material collection. For more information about the public works department visit: www.greenbeltmd.gov

Swimming with the Fishes: Recycled Concrete Finds New Life Supporting Maryland's Marine Habitat

Fish and other aquatic life in Maryland's Chesapeake Bay have vibrant new marine habitats to call home, thanks to concrete recycled from the former Woodrow Wilson Bridge that was used to create five major fish reefs in the bay and the Potomac River. "This is the most gratifying project I have ever worked on," says Michael Baker, Environmental Manager for the Woodrow Wilson Bridge Project. "Not only did we keep this material out of a landfill, but the reefs are doing phenomenally well and are already providing habitat for multiple fish species."

The reefs are already supporting fish such as striped bass and bluefish, as well as benthic communities of mussels, barnacles, oysters, and tunicates.

Built in 1961, the six-lane Woodrow Wilson Bridge outside of Washington, DC, was carrying nearly 200,000 vehicles daily by the late 1990s, almost three times its original intended traffic load. Construction on a new 12-lane bridge began in October 2000 and was completed in November 2008, although work has continued on four local interchanges that are part of the overall project. The Woodrow Wilson Bridge Project is jointly sponsored by the Federal Highway Administration (FHWA), Virginia Department of Transportation, Maryland State Highway Administration, and the District of Columbia Department of Transportation.

"We had been thinking about reef creation early on in the project, although it was not part of the contract or permit requirements," says Baker. At an estimated premium of $1.5 million over less expensive alternatives, however, the initiative appeared to be too costly for the contractors to consider. Agreements among the Maryland Department of Natural Resources (DNR) and two of the project contractors, American Bridge/Ed Kraemer & Sons and Potomac Constructors, moved the initiative forward, with the DNR contributing initial funding of $38,000 in a cost-sharing effort. Additional partners included the Coastal Conservation Association of Maryland (CCA MD), which created a "Buy a Ton of Reef" program; Mitchell-Petersen Foundation; Dominion Energy; Shell; and Honeywell, Inc.; as well as local charter boat captains and conservation and fishing organizations. With the help of the Maryland Legislative Sportsman's Foundation, working with the Maryland Legislative Sportsman's Caucus, the Maryland General Assembly passed a bond bill that contributed $500,000 to the effort. "It was a tremendous partnering effort," says Baker, who noted that the entire $1.5 million cost has been paid to the contractors, as committed. To support the effort and encourage future projects, the Maryland DNR and CCA MD established the Maryland Artificial Reef Initiative, a coalition of over 60 partners dedicated to improving and restoring marine habitats.

Steel drawbridge trunnions from the old Woodrow Wilson Bridge outside of Washington, DC, are placed at the Point No Point Reef near the mouth of the Potomac River.

On August 4, 2006, the first load of concrete materials from the old bridge was taken by barge to the Point No Point Reef in the Chesapeake Bay and placed on the bottom of the bay to bolster the reef. The resulting reef is now the size of two football fields. Over the next 2 years, 59,000 metric tons (65,000 tons) of materials were hauled out in 52 barge loads to create a total of five reefs in the Chesapeake Bay and the Potomac River. By comparison, from 1996 to 2006, 24,000 metric tons (27,000 tons) of materials had been used to create aquatic reefs in Maryland.

Prior to taking the barge loads, asphalt and materials such as oils, greases, and solvents were stripped off of the bridge and the structural steel was recycled. Materials such as concrete deck slabs and pier columns were the first items to be hauled. Project staff partnered with charter boat captains and the Maryland Geological Survey to choose the reef locations. After the old bridge was demolished with explosives, the resulting smaller concrete materials were hauled out to the bay and placed vertically on top of the deck slabs and other larger items in the reefs. The last load was placed on November 4, 2008.

"We thought it might take 3 to 5 years for the habitats to evolve. We first sent divers to the reefs in November 2007 and were amazed at how fast the ecosystems had developed," says Baker. The reefs are already supporting fish such as striped bass and bluefish, as well as benthic communities of mussels, barnacles, oysters, and tunicates.

Swimming with the Fishes, con't

A load of concrete debris is taken to the Dominion Reef at the Gooses in the Chesapeake Bay.

"While this is not cost effective for every project and will have to be evaluated on a case-by-case basis for future projects, there is a lot of opportunity out there," says Baker. More recently, materials from a re-decking project on Maryland's Chesapeake Bay Bridge were used to create a reef in the Severn River, a tributary to the Chesapeake Bay. Additional reef projects are in the planning stage.

"When looking at recycling or reusing materials from a project, cost should not be the only deciding factor. The enhancement to the environment has a value that needs to be understood and factored into the decision making. The establishment of living reefs will have a long-term positive impact on the bay," says Jason Harrington of FHWA.

A concrete barrier is placed at Tangier Reef in Tangier Sound.

For more information on the Woodrow Wilson Bridge reef initiative, contact Michael Baker with Potomac Crossing Consultants/URS at 443.615.0215 or email bakerm@wwbgec.com. For more information on recycling highway materials, contact Jason Harrington with FHWA at 202.366.1576 or jason.harrington@fhwa.dot.gov. To learn more about collaborative efforts to encourage environmentally friendly road building, visit the Green Highways Partnership web site at www.greenhighways.org.

Reprinted from the April 2009 issue of FOCUS, a publication of the United States Department of Transportation and the Federal Highway Administration.

Looking for Basic Traffic Signal Operations Information and Training?

The National Institute for Advanced Transportation Technology web site www.webs1.uidaho.edu/niattproject/index.htm presents tutorial modules which provide the basics of traffic signals: Pre-timed Signals, Actuated Signals, and Coordinated Signals. The Hardware in the Loop Simulation (HILS) module provides information on developing simulations utilizing actual traffic controllers. Modules can be reviewed at the user's own pace.

In the first three modules a Background section introduces concepts related to the particular signal type and the Exploration section presents case study problems to enhance learning. Users read through background materials then proceed to case studies which give information and a list of steps leading the user through the process of determining a signal timing plan, based on the background in that module. Example steps are provided. Case studies use HILS hardware and software but can still be informative, even without equipment access.

Be sure to pay attention to the following extra instructions which are easy to overlook but important to complete the step correctly: 1) Controller Settings link, which takes the user to information explaining what needs to be done for that step; and 2) Indented text (below the step) contains specific instructions supplementing the linked page.

Reprinted from the February 2009 issue of Florida Technology Transfer Quarterly, a publication of the University of Florida, Florida Transportation Technology Transfer (T^2) Center.

Growing... Not Mowing

SHA Roadsides Go Greener with Mowing Reduction Program That Helps Protect Environment and Saves Green Too

On the other side of the road, the grass is greener - because it's longer. In support of the State's ongoing commitment to environmental stewardship, Maryland State Highway Administration is making Maryland roadsides greener through a mowing reduction program. This initiative restores natural meadows through the reduction of mowing along roadways. By allowing grasses to grow naturally, SHA will also re-establish vegetation, forested areas and enhance the environment while maintaining safety.

By reducing the width of mowed areas adjacent to State roads, SHA estimates a 10 percent reduction in the total number of acres mowed annually – about 8,500 acres total, allowing the State to stay within budget during this time of shrinking funds and increasing expenses. In some areas mowing will be eliminated altogether, other areas will receive only periodic cuts – once in the late spring or early summer and once again in the fall. Reduced mowing will occur along wide medians and right shoulders along a variety of selected interstates and primary routes.

"Maryland's roadways will be going greener this summer - literally. The 'cut-back' in grass cutting provides a green win-win by enhancing the environment and freeing funds that can be invested in other critical safety projects," said Maryland State Highway Administrator Neil J. Pedersen. "As always, SHA will remain focused on safety and ensure sight distance at shoulders so that signs and other traffic control devices remain visible."

Safety is the primary consideration in determining when, how, and where to reduce mowing. Motorists are likely to see longer grass in median strips as well as roadway shoulders. Reduced mower usage will immediately produce environmental benefits, including improved air quality with a decrease in carbon-fuel emissions created by gas-powered mowers. Long-term effects include:

Improved water quality - Meadow plants and trees decrease storm water runoff better than mowed turf, allowing for better groundwater recharge and reduced sediment in bodies of water.

Improved air quality – The growth of more trees and plants will result in the further removal of carbon dioxide, which will replenish oxygen and reduce the effects of green-house emissions.

Wildlife Habitats - Meadow plants and trees attract small animals, birds and insects that are an important part of our ecosystem.

More Cost Savings - Meadows and trees are low maintenance and don't require reseeding, fertilizer or pesticides year after year.

If SHA customers have specific questions about maintenance operations in their communities, they should call their closest SHA Maintenance Facility, a complete listing is available at www.marylandroads.com, or citizens may call 1.800.323.6742.

FHWA - Nine Life Saving Strategies

FHWA Urges Road Agencies to Consider "Top Nine" Life-Saving Strategies

The FHWA Safety Program urges State and local roadway officials to consider implementation of nine safety countermeasures that show great potential to reduce highway fatalities and injuries. As State highway agencies develop plans to address the safety challenges identified in their strategic highway safety plans, they are urged to consider the benefits of investments in these proven roadway safety tools and techniques.

Road Safety Audits – A road safety audit (RSA) is a formal safety performance examination of an existing or future road or intersection. Audit teams are independent and multidisciplinary. The team reports on potential road safety issues and identifies opportunities to improve safety for all road users.

Rumble Strips and Rumble Stripes – Rumble strips are raised or grooved patterns on the roadway that provide both an audible warning (rumbling sound) and a physical vibration to alert drivers that they are leaving the driving lane. They may be installed on the roadway shoulder or on the center

Continued on Page 5

line of undivided highways. Rumble stripes are rumble strips that are placed at the center line or edge line.

Median Barriers –Median barriers are longitudinal barriers used to separate opposing traffic on a divided highway. They are designed to redirect vehicles striking either side of the barrier. Median barriers can significantly reduce the number of cross-median crashes and the overall severity of median-related crashes.

Safety Edge –The Safety Edge asphalt paving technique minimizes vertical drop-off safety hazards. A Safety Edge shape is created by fitting resurfacing equipment with a device that extrudes and compacts the shape of the pavement edge at a specific angle as the paver passes. This mitigates shoulder pavement edge drop-offs immediately during the construction process and over the life of the pavement. Because the technique involves only a slight modification of paving equipment, it has a minimal impact on project cost. Improved compaction of the pavement near the edge is an additional benefit of the Safety Edge.

Roundabouts –A roundabout is a circular intersection where entering traffic yields to vehicles on the circulatory roadway. Roundabouts are designed to channel traffic at the entrance and provide collision deflection around a center island. Modern roundabouts are geometrically designed to reduce speeds and deflect collision forces, which substantially improves safety, while providing excellent operational performance at the intersection.

Left- and Right-Turn Lane at Stop-Controlled Intersections – Left-turn lanes are auxiliary lanes for storage or speed change of left-turning vehicles. Left-turn lanes reduce the likelihood of intersection crashes. They also make turning easier for drivers and improve the intersection's operational efficiency. Right-turn lanes provide a separation at intersection approaches between right-turning traffic and adjacent through-traffic. This reduces conflicts and improves intersection safety.

Yellow Change Intervals – Yellow signal lights that are not timed appropriately are a safety hazard. Yellow change intervals that are not consistent with normal operating speeds create a "dilemma zone" in which drivers can neither stop safely, nor reach the intersection before the signal turns red.

Medians and Pedestrian Refuge Areas in Urban and Suburban Areas – Medians reduce traffic conflicts and increase safety by providing a buffer area between opposing lanes of traffic. Medians can be open (pavement markings only), or channelized (raised medians or islands) to separate various road users. Pedestrian Refuge Areas—also known as crossing islands, center islands, refuge islands, pedestrian islands, or median slow points—are raised islands placed in the street to separate crossing pedestrians from vehicles.

Walkways – Appropriately designed walkways increase safety for all road users. Types of walkways include:

- *Pedestrian Walkway (Walkway)* – A continuous way designated for pedestrians and separated from motor vehicle traffic by a space or barrier.
- *Shared Use Path* – A bikeway or pedestrian walkway physically separated from motor vehicle traffic by an open space or barrier, either within a highway right-of-way, or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Shared use paths also are referred to as "trails" or "multiple-use trails."
- *Sidewalks* – Walkways that are paved and separated from the street, generally by curb and gutter.
- *Roadway Shoulder* – In rural or suburban areas where sidewalks and pathways are not feasible, gravel or paved highway shoulders provide a safer area for pedestrians to walk next to the roadway.

For more information on these countermeasures, visit http://safety.fhwa.dot.gov.

State Highway Administration Thinks Outside the Bog

Hampstead Bypass Project and Goats Keep Endangered Bog Turtles and Their Habitat Safe

Amid the meadows and bogs that surround the $85 million Hampstead Bypass, there exists a major dilemma - how to mow the turf but protect the threatened bog turtle and not allow the grass to grow uncontrollably. The gears in innovative minds have been turning seeking solutions to this problem.

The Maryland Department of Transportation's State Highway Administration (SHA) has come up with an unusual idea - using goats as lawn mowers! In May, SHA enlisted a herd of 40 goats from a local farmer to begin a conservation grazing project on approximately eight acres of meadows and bogs in Hampstead, Carroll County.

"Avoiding and minimizing environment impacts is a challenging part of highway maintenance and construction," said Neil J. Pedersen, SHA Administrator. "Using goats to maintain turf in an environmentally sensitive area is not only an innovative idea, it clearly demonstrates our vision of a greener highway system."

Pictured above is a female bog turtle, photo source: www.turtlesite.info/

Using traditional mowing methods could have led to a major disruption of the bog turtle habitat and could injure or kill the turtles. SHA investigated the use of cattle to maintain turf, but the weight of cattle could pose a hazard to the four-inch bog turtle. Goats are lighter weighted animals and pose no significant hazard to the bog turtle or their habitat along the Bypass. Additionally, SHA installed special bog turtle fencing toward the northern end of the bypass to deter the turtles from crossing the roadway.

SHA is using the goat grazing as a two-year, $10,000 pilot, which will be evaluated after one year to measure the success of the project and to determine if the project should be expanded to other environmentally sensitive regions across the state. The cost of the goats includes delivery to and from the project, supplemental feed and routine veterinary care. The goats will graze the fields from mid-May until the beginning of September, which is the end of the mowing season.

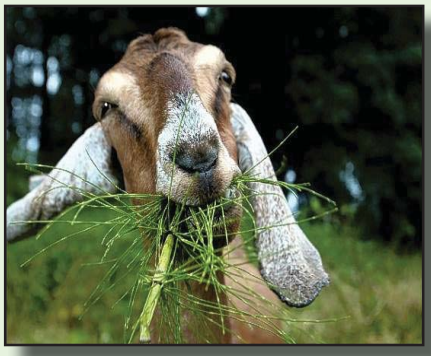

Photo source: blogs.nationalgeographic.com

In sync with the natural environment, reducing traditional mowing supports Governor Martin O'Malley's Smart, Green and Growing initiative. Bog turtles can live up to 30 years, have dark bodies with bright yellow, orange or red blotches on their heads and live in calcium-rich wetlands, wet meadows and bogs. Bog turtles are listed as threatened by the Federal Endangered Species Act.

SHA started construction on the MD 30 Relocated (Hampstead Bypass) project summer 2006 and is anticipated to be completed this summer, weather permitting. Citizens who have questions about traffic operations along the Hampstead Bypass or other State numbered routes in Carroll County may call SHA's District 7 Office at 301.624.8100 or toll free at 1.800.635.5119.

Introduced by Governor Martin O'Malley in October 2008, Maryland's Smart, Green & Growing initiative was created to strengthen the state's leadership role in fostering smarter, more sustainable growth and inspire action among all Marylanders to achieve a more sustainable future. The initiative brings together state agencies, local governments, businesses and citizens to create more livable communities, improve transportation options, reduce the state's carbon footprint, support resource based industry, invest in green technologies, preserve valuable resource lands and restore the health of the Chesapeake Bay.

For more information about the Maryland State Highway Administration visit: http://www.sha.state.md.us.

NHI Is Now Offering Free Web-Based Training

Federal Highway Administration's National Highway Institute (NHI) is now offering a free web-based training course on pavement preservation designs for state and local highway agency personnel and contractors.

The 6.5 hour course, Pavement Preservation Treatment Construction (Course No. FHWA-NHI-131110), introduces pavement preservation concepts and techniques and provides a solid foundation of knowledge on preservation practices. The course covers project and treatment selection, including design and construction of the following treatments:

- Crack sealing, crack filling and joint sealing of flexible pavements
- Patching and edge repair
- Chip seals
- Micro-surfacing projects
- Thin functional and maintenance overlay projects
- Ultra thin, hot-mixed, bonded overlay projects
- Pavement preservation treatment

To take the training course, visit the NHI web site at www.nhi.fhwa.dot.gov. Choose "Enroll in a Session" under the heading "What Would You Like to Do?" Enter FHWA-NHI-131110 into the course number field and hit search or enter. Participants can view the Pavement Preservation Treatment Construction Guide online at http://fhwapap34.fhwa.dot.gov/NHIPPTCG/index1.htm.

The Pavement Preservation Treatment Construction Guide offers short animated clips to help further explain the process of how damage occurs and how to fix it. Other free courses offered by NHI include:

- Pavement management systems: Characteristics of an effective program
- Basic materials for highway and structure construction and maintenance
- Ethics awareness for the transportation industry
- Basic construction and maintenance documentation - Improving daily diary
- Hardened concrete properties; durability
- Plan of action for scour critical bridges
- Traffic monitoring and pavement design programs
- Highway performance monitoring system - An introduction

This article was reprinted from the Winter 2009 issue of Are We There Yet?
A publication of the South Carolina Transportation Technology Transfer Service (T³S).

CITE Blended Courses for 2009

The Consortium for ITS Training and Education (CITE) announces its Blended Course schedule for 2009. Scheduled courses include:

- Managing High Technology Projects in Transportation, September - October
- Traffic Signal Timing, September - October
- Principles and Tools of Road Weather Management, October - November
- Introduction to Systems Engineering, October - November
- Configuration Management, December

For more information about or to register for CITE's Blended Courses visit:
www.citeconsortium.org

Maryland's New Speed Camera Law (Automted Speed Enforcement Program)

Highlights of the Law

- The overriding goal of this law is to *affect a change in behavior* and urge drivers to do what they should already be doing: driving responsibly, staying alert and traveling the posted speed limit.
- The law goes into effect October 1, 2009.
- Local jurisdictions can place speed cameras once a local law authorizing placement has been passed, with proper public notification and due process observed.
- Speed cameras cannot be used on major bridges and tunnels;
- A citation may only be issued if the driver is going at least 12 miles per hour (mph) faster than the speed limit;
- Conspicuous signs must be posted to give drivers adequate notice;
- Upon implementation of the program, a 30-day warning period is required before any tickets given;
- Fines cannot exceed $40.00. The District Court will set the specific amount; localities can only keep an amount of net revenue not greater than 10 percent of their operating budget. The rest must be turned over to the Comptroller;
- For three years, net revenues collected from fines generated by speed cameras in work zones will go to an account for state police roadside enforcement activities.
- In work zones, speed cameras may be placed along expressways and controlled access roadways with a speed limit if at least 45 mph.

Implementation

- The State Highway Administration (SHA) is forming a team to work with law enforcement on details regarding implementation of the automated speed enforcement program.
- A symposium was held at the end of June, hosted by SHA and the Montgomery County Police, to share with local jurisdictions how to implement a successful automated speed enforcement program in school zones only. The symposium was by invitation to local governments.
- More information will be provided following the meetings and symposiums.

Statistics and Historical Perspective

- According to a recent Insurance Institute of Highway Safety study, speeds were measured six months before a Speed Monitoring System program started and six months after. On roads where cameras and notice signs were placed, they found a 70 percent reduction in drivers traveling more than 10 mph over the speed limit.
- In 2006, speed was a contributor in 13,543 crash deaths (31 percent of all highway fatalities)
- In 2006, speed-related crashes were responsible for approximately $40.4 billion in economic losses

Maryland Data from 2007

- 19,000 (19 percent) of the 101,000 reported crashes were speed-related
- 156 (28 percent) of the 558 fatal crashes were speed-related
- Estimated socioeconomic losses exceeded $2 billion (figure based on a Federal Highway Administration report)
- The average highway work zone has narrow lanes, shifting traffic patterns, heavy construction equipment, limited sight lines, jersey barriers, dust, temporary pavement markings, and sometimes only an orange barrel between construction workers and traffic moving at more than 65 miles per hour.
- Even when workers are not present, work zones present less than ideal conditions including narrowed or shifted lanes, concrete barriers, uneven pavement, dust relocated signs, and stopped traffic.
- National statistics indicate that 80 percent of work zone crash victims are those driving the vehicle or other passengers inside the vehicle.
- Cameras can help protect not only the lives of Marylanders who use the roads, but also the lives of people who perform their jobs in often hazardous conditions.

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Our Currently Scheduled Courses

The following courses are scheduled for 2009, and we are still adding to the list! Sign up now for our currently scheduled courses, hurry, they fill up fast! For more information or to schedule a class contact Janette Prince at 301.403.4623 or register online by visiting us at www.mdt2center.umd.edu.

ENGINEERING FABRICS, GRIDS, WEBS, AND CELLS (WHAT THEY ARE AND HOW THEY'RE USED)

Ed Stellfox
July 15, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government
$65 Maryland State Government
$75 All Other Participants

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 following topics will also be covered: history, materials, geotextile fabrics, geogrids, geocells and geowebs, uses & applications, drainage, inflation, erosion control, reinforcement, separation, and reflective crack control.

ASPHALT ROADS - COMMON MAINTENANCE PROBLEMS

Ed Stellfox
July 16, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government
$65 Maryland State Government
$75 All Other Participants

This course discusses cause and repair procedures for common problems such as cracking, potholes, rutting, corrugations, etc. The procedures cover materials, equipment, and techniques for lasting repairs. Also included, a brief discussion of surface treatment.

FLAGGER CERTIFICATION

Juan Morales
August 4, 2009, 8:30am - 12:30pm
College Park, Maryland
$100 All Registrants

The safety of workers, motorists and pedestrians is dependent upon the flaggers' performance. Since the flagger position involves safety, proper training is vital; flaggers are expected to pass a test to prove their proficiency and competence level. A MD SHA-approved ATSSA (American Traffic Safety Services Association) flagger card will be issued upon satisfactory completion of this course. This will be valid for 4 years and is acceptable in several states, including MD, VA and DC. The class is presented in Power Point© and will include a 25-question multiple choice exam and a flagger demonstration (dexterity test). Students will receive their ATSSA Flagger Certification card the day of the course (upon passing the exam).

ROAD SURFACE MANAGEMENT

Ed Stellfox
August 5, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 All Other Participants

This course provides participants with the basic concepts of road surface management including inventory, distress identification, condition survey, strategies, programs, budgets, and field surveys. A Road Surface Management Systems software demonstration will also be conducted during this course.

PREVENTIVE PAVEMENT MAINTENANCE

Ed Stellfox
August 19, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 Maryland State Government
$110 All Other Participants

This course covers preventive maintenance treatments such as chip seals, slurry seals, and micro-surfacing 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.

UNPAVED GRAVEL ROAD MAINTENANCE

Ed Stellfox
September 9, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government Only
$65 Maryland State Government
$75 All Other Participants

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

ROUNDABOUT PLANNING & DESIGN

Dane Ismart
September 15, 2009, 8am – 4pm
College Park, Maryland
$115 Maryland Local Government
$125 Maryland State Government
$140 All Other Participants

This course will provide participants with an introduction to the planning and design of the modern roundabout. Topics covered in the roundabout course will include geometric design, signing, striping, safety, and accommodation of pedestrians and bicyclists. An important component of the course will be a discussion of the advantages and disadvantages of roundabouts.

INTERSECTION DESIGN & ANALYSIS

Dane Ismart
September 16-17, 2009, 8:30am- 4pm
College Park, Maryland
$225 Maryland Local Government
$275 Maryland State Government
$300 All Other Participants
CEU's: 1.2

This course will have broad general coverage of at-grade intersection analysis and design features. The analysis will include signalized, unsignalized and roundabout intersections. Specific coverage will include capacity, analysis, signal warrants, queue analysis and safety selected design features.

WORK ZONE TRAFFIC CONTROL

Ed Stellfox
September 23, 2009, 8:30am-12:30pm
College Park, Maryland
$50 Maryland Local Government
$75 All Other Participants
This half-day course will discuss the importance of work zone traffic control (WZTC) covering topics such as safety and liability. Regulations and guidelines will also be discussed with topics ranging from traffic control plans, traffic control devices, installation, and flagging procedures. Plan exercise and inspection of work zones will also be covered.

ROADWAY SAFETY FUNDAMENTALS

Mark Hood
September 30, 2009, 8am- 4pm
College Park, Maryland
$125 Maryland Local Government
$150 Maryland State Government
$175 All Other Participants

This course will cover the following topics:

- Basics of road safety: why, when, and where crashes occur
- Solving fundamental traffic safety problems
- Using traffic control devices to improve safety: signs, signals, pavement markings, and maintenance
- Common roadway safety issues: curves, stopping sight distance, edge drop-offs, etc.
- Basic Intersection Safety

SIGNAL WARRANT & INTERSECTION CONTROL ANALYSIS

Dane Ismart
October 6, 2009, 8:30am – 4pm
College Park, Maryland
$120 Maryland Local Government
$150 Maryland State Government
$175 All Other Participants
CEU's: 0.6

This course will cover the eight MUTCD signal warrants: eight-hour vehicle volume, four-hour vehicle volume, peak hour, pedestrian volume, school crossing, coordinated signal system, crash experience, and roadway network. The course will also cover warrants for four-way stops as well as alternatives to traffic control signals.

TRAFFIC SIGNS

Ed Stellfox
October 7, 2009, 8:30am – 12:30pm
College Park, Maryland
$50 Maryland Local Government
$75 All Other Participants

This half-day course will cover the regulations and guidelines for traffic signs including; regulatory signs, warning signs, and guide signs. A review of the Manual on Uniform Traffic Control Devices (MUTCD) will also be covered. An in depth discussion of sign examples, installation and maintenance, as well as sign management will be covered.

WINTER MAINTENANCE

Ed Stellfox
October 14, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 Maryland State Government
$110 All Other Participants

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

LOW COST SAFETY IMPROVEMENTS

Mark Hood
October 22, 2009, 8:15am - 4pm
College Park, Maryland
$100 Maryland Local Government
$125 All Other Participants

This course provides participants with methods for implementing effective, low cost safety improvements targeted at high crash areas. It emphasizes the basic and enhanced application of traffic control devices, low cost safety improvements, and their specific safety benefit (crash reduction factors). Traffic crash data collection, identification of hazardous locations, and engineering study procedures are also discussed. Emphasis is placed on low cost solutions that may be made at the local level.

BLUEPRINT READING FOR HIGHWAY WORKERS

Glynn Stoffel
October 27, 2009, 8:30am - 4:30pm
College Park, Maryland
$125 Maryland Local Government
$150 Maryland State Government
$175 All Other Participants

Upon successful completion of this course the student will be able to read and interpret many of these blueprints as well as demonstrate the ability to produce accurate and legible field sketches. At the conclusion of the course, the student will be able to…

- Recognize and define the various lines and symbols used in plan construction.
- Describe and discuss the characteristics of plans, plats, profiles, views, details and other drawings found in a set of working plans.
- Demonstrate the ability to use engineer's and architect's scales.
- Demonstrate the ability to read and interpret the different blueprints and plans used in highway construction and maintenance.
- Describe how to effectively use plans in the field.
- Draw legible field sketches and as-built drawings.
- Obtain a score of at least 70% on the review test.

SITE IMPACT ANALYSIS

Dane Ismart
November 17-18, 2009, 8:15am- 4:30pm
College Park, Maryland
$250 Maryland Local Government
$285 Maryland State Government
$325 All Other Participants
CEU's: 1.2

This two-day workshop gives participants the opportunity to 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 level of service designation. This is an excellent course for transportation engineers, traffic engineers, and concerned planners.

Maryland's New Speed Camera Law
(concluded from page 8)

Other States' Work Zone Laws

Illinois enacted its law in 2004 and implemented it in 2006. The highlights of its law include:

- Speed limit must be lowered, workers must be present as well as state policemen in vehicles
- First offense: $375; second offense: $1000 + 90-day suspension

Researchers at the University of Illinois at Urbana-Champaign evaluated the affects on speed of automated work zone speed monitoring systems on two Interstate Highways in Illinois. This is the first study of the effectiveness of speed reduction by automated speed monitoring systems within work zones. The study examined three sets of speed data. In data set one, the percentage of free flowing cars exceeding the speed limit was reduced from 39.8 percent when an automated speed monitoring system was not present to 8.3 percent in the first set of data, from 30.4 percent to 4.2 percent in the second set, and from 93.2 percent to 45.2 percent in the third. In each data set, the study reported an over 20 percent reduction in the percentage of cars traveling over the speed limit when automated enforcement was present.

Oregon enacted its law in 2007, with implementation in 2008. Details include:

- The law applies to work zones on state highways, except interstates
- Signs and speed boards required
- Cameras in marked vehicles manned by uniformed officers
- Workers must be present
- Vehicle owner responsible
- Same sanctions as other speeding violations
- Department of Transportation must fund

Washington State enacted its law in 2007, details include:

- Applies to work zones on state highways
- Workers must be present
- Vehicle owner responsible
- Fine is $137

For more information about Maryland's New Speed Camera Law visit: www.sha.state.md.us

Save the Date! MACO Annual Summer Conference

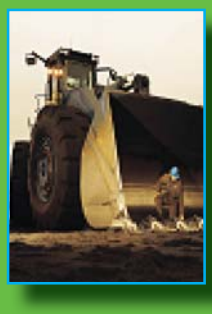
We hope you'll not only save-the-date but join the MD T2 Center in attending the Maryland Association of Counties (MACo) Annual Summer Conference "Riding the Economic Cycle" hosted in Ocean City, Maryland August 12 - 15, 2009. The conference will be at the Roland Powell Convention Center and is happy to welcome Anirban Basu, Chairman & CEO of Sage Policy Group, Inc. as this year's keynote speaker.

This year's conference includes session topics such as:

- MOE Funding Today and Tomorrow
- Gangs: Tracking & Criminal Behavior
- Budget Cuts and Employee Morale
- Revisiting Priority Funding Areas: What's Next?
- Doing More (Services) With Less: (People/Funding)
- Sustainable Local Agriculture
- Census 2010: Counting for Dollars
- H1N1 Flu Threat: Easy Rider?
- Managing DUIs in Local Facilities
- TMDLs
- Job Ready Education
- Bay Restoration Fund
- Health Care & Uncertain Funding
- Economic Benefits of P&R

For more information about the MACo Annual Summer Conference visit: http://www.mdcounties.org. If you are planning on attending, visit the MD T2 Center at out exhibit booth #1003. We hope to see you there!





MD T² Center Staff

Tom Jacobs, Director
301.403.4534
Tjacobs@umd.edu

Ed Stellfox, Co-Director
301.403.4696
Stellfox@umd.edu

Janette Prince
Program Manager
301.403.4623
Janette@umd.edu

Ellen Neal
Administrative Assistant
301.403.4239
Ellen@umd.edu

Carly Keane
Newsletter Editor
301.403.4601
Ckeane@umd.edu

Requesting Technotes

To reduce the number of printed newsletters, we are no longer mailing technotes. If you wish to receive a printed copy, please email us at mdt2@umd.edu to request one.

MD T² Advisory Board Committee