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technotes

MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER
LOCAL TECHNICAL ASSISTANCE PROGRAM (LTAP)
UNIVERSITY OF MARYLAND AT COLLEGE PARK

INSIDE

2006 ROADWAY MANAGEMENT CONFERENCE

The University of Maryland T2 Center with help from the Delaware, Virginia, West Virginia and Pennsylvania LTAP centers, recently hosted the Roadway Management Conference for LTAP Region 3 at the Clarion Fontainebleau Conference Center in Ocean City, Maryland from March 20-22. Over 300 people from counties, cities, towns, townships and boroughs across the five states attended the many interesting courses given by experts from the Mid Atlantic region, and beyond.

The program began with welcome speeches from Maryland T2 Program Manager, Ed Stellfox; Dr. Richard Woo, Director of SHA Office of Policy and Research; and Gib Peaslee, LTAP Program Manager, FHWA Office of Professional and Corporate Development, Affiliate Programs Team. The Honorable Richard W. Meehan, Mayor of Ocean City, also welcomed the group and

Assistant Program Manager Janette Prince deals with a problem

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DID YOU KNOW

FUNNY THING ABOUT TRANSPORTATION SPECIFICATIONS

HERE'S AN INTERESTING COMMENT ON THE PHRASE "*WE'VE ALWAYS DONE IT THAT WAY.*" THE U.S. STANDARD RAILROAD GAUGE (DISTANCE BETWEEN THE RAILS) IS 4 FEET, 8-1/2 INCHES. WHY WAS SUCH AN ODD NUMBER USED? Because that is the way they were built in England, and English expatriates built the U.S. railroads.

SO, WHY DID THE ENGLISH BUILD THEM LIKE THAT? Because the first rail lines were built by the same people who built the pre-railroad tramways, and that is the gauge that they used.

WHY? Because the people who built the tramways used the same jigs and tools that they used for building wagons, which used that wheel spacing.

OKAY, WHY DID THE WAGONS HAVE THAT PARTICULAR ODD WHEEL SPACING? Well, if they tried to use any other spacing, the wagon wheel would break on some of the old, long distance roads in England, because that is the spacing of the wheel ruts.

SO WHO BUILT THOSE OLD RUTTED ROADS? The first long distance roads in Europe (and England) were built by Romans from Imperial Rome for their legions. These roads have been used ever since.

WHAT ABOUT THOSE RUTS IN THE ROADS? Roman war chariots formed the initial ruts, which everyone else had to match so they would not destroy their wagon wheels. Since the chariots were made for Imperial Rome, they were all alike in wheel spacing. Therefore, the United States standard railroad gauge of 4 feet, 8-1/2 inches is derived from the original specifications for an Imperial Roman war chariot, which is just wide enough to accommodate the back ends of two war horses. But, there is more. Space shuttles have two big solid rocker boosters (SRB) attached to the sides of the main fuel tank.

The design engineers would have liked to make them larger, but the SRB's had to be shipped by train from the factory in Utah to the launch site. The railroad runs through a tunnel and the SRB's had to fit through that tunnel. The tunnel is slightly wider than the railroad track, and the railroad track, as mentioned earlier, is about as wide as two horse's behinds. So, a major space shuttle design feature of what is probably the most advanced transportation system we have developed was determined over two thousand years ago by the width of a horse's hind end.

Article Credit:
Oklahoma LTAP News, January 2006, Volume 10, Number 1.

TYPICAL PROBLEMS IN HIGHWAY WORK ZONES AND THEIR SOLUTIONS

The following common problems in work zones can increase the danger to motorists and workers:

- **SIGNS LEFT UP WHEN NO WORK IS GOING ON.** When drivers see work zone signs but no work activity, they lose respect for such signs. Before leaving the work zone, crews should keep up only those signs necessary to warn motorists of the road conditions. Especially important is the removal of the "Flagger Ahead" sign.
- **IMPROPER SIGNS AND SIGN STANDS.** Wooden and heavy metal signs and sign supports can cause considerable harm in minor accidents. They should be "crashworthy," which means that they conform to NCHRP Report 350. Suppliers can provide certification that signs and supports meet "350" requirements.
- **TOO FEW CONES AND BARRELS.** There must be enough cones or barrels to define the transition area tapers clearly. The minimum number depends on taper length and traffic speed. They should be evenly spaced along the taper length.
- **DEVICES TOO SMALL.** In greater than 35 mph work zones, and in all work zones at night, cones must be 28 inches high. They must have two retroreflective stripes or lights. In 35 mph and less work zones, cones can be 18 inches high with one retroreflective stripe. Barrels must be at least 36 inches high and 18 inches wide. They must be orange with at least two white, 4 to 6 inch wide, retroreflective stripes. Barrels can have weight in the bottom, but not be filled.
- **NON-REFLECTIVE DEVICES.** All signs and other devices must be retroreflective and visible at night.
- **FLAGGERS USING FLAGS.** Flags should be used for emergency use only. Flaggers should use STOP/SLOW paddles, and hand signals when necessary. Paddles must be 8-sided (not round), retroreflective, at least 18 high and wide, and on a rigid handle.
- **COMPLACENT FLAGGERS.** Flagging can be boring and tiring, but flaggers must stay alert and pay attention at all times. One moment of complacency can result in injury to motorists, passengers, workers, and/or the flagger.
- **POOR FLAGGER LOCATION.** Flaggers should be on the outer edge of the travel lane they are directing. They should stand alone, away from equipment and other workers. They should stay out of shadows and be visible to drivers well in advance of their location.
- **LACK OF TERMINATION SIGNS.** As a courtesy to drivers, all lane closures should end with an "End Road Work" sign.

References:

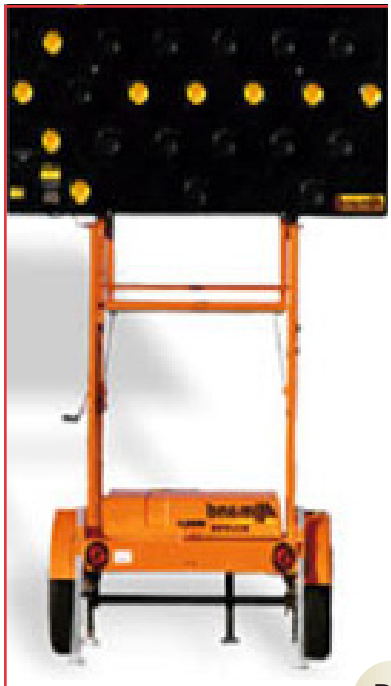
- *MUTCD, http://mutcd.fhwa.dot.gov*
- *Ten Problems in Highway Work Zones, Oklahoma LTAP News, October 2004, p. 8.*
- *Slides from Workzone Traffic Control, UNH T2 Workshop.*

Reprinted with permission from Road Business, Spring 2005, Volume 1, No. 20, Technology Transfer Center, University of New Hampshire.

Article Credit:

From VA Newsletter, The Road Ahead, published quarterly by the Virginia Transportation T^2 Center. The views expressed do not necessarily represent the views of the sponsoring agencies.

When drivers see work zone signs but no work activity, they lose respect for such signs. Before leaving the work zone, crews should keep up only those signs necessary to warn motorists of the road conditions. Especially important is the removal of the "Flagger Ahead" sign.



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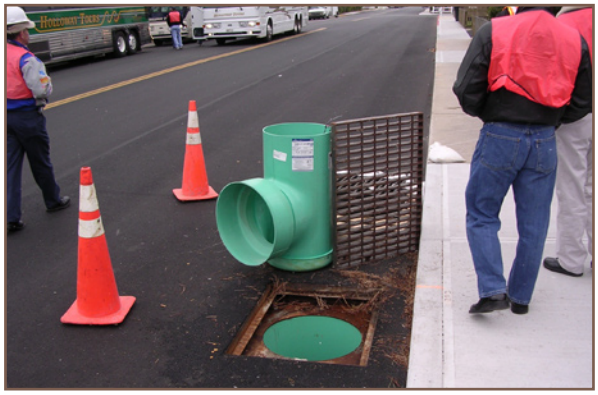
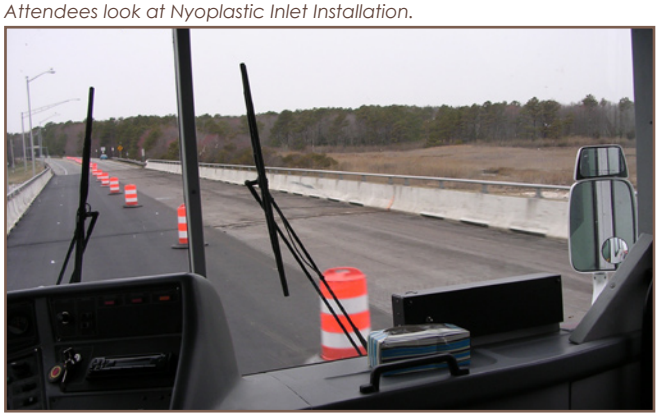
Gib Peaslee NHI LTAP in full regalia



Attendees look at Nyoplastic Inlet Installation.



Rte 90 Milling and Resurfacing Project from the comfort of a dry bus.

presented Ed with a key to the city. The Mayor and his staff, especially, Hal Adkins, Public Works Director and Dean Dashiell helped immensely, providing projects to view and even allowed us to use one of their streets for our demonstrations.

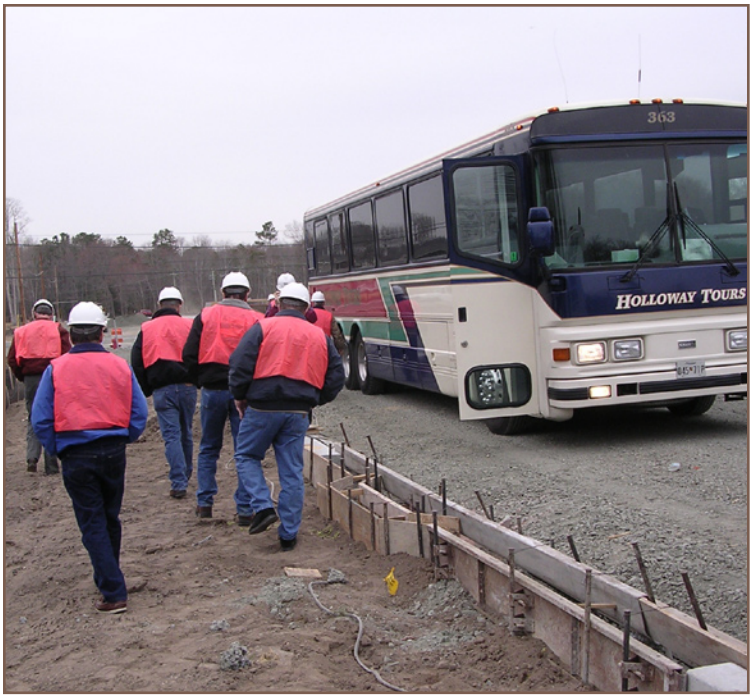
Regularly scheduled sessions followed four tracks, engineering, education, enforcement and everything else. The topics covered included Employee Development topics like: Team Building, Better Communication Strategies and Ethics; to Nuts and Bolts Maintenance topics like Winter Chemicals Versus Abrasives, and Superpave; to Current Interest topics like Crash Reconstruction, Disaster Management and Retroreflectivity. Most of the materials; powerpoints, handouts etc are available on the Maryland T^2 website http://www.civil.umd.edu/mdt2center/.

Our luncheon speaker was Dr. James Burati from Clemson University (*see photos to right*). Jim gave a presentation on "Miscommunication 101" which featured many hilarious signs and situations he has encsountered in his travels.

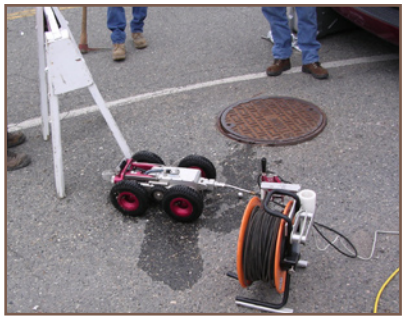
On Day two, bus trips visited three different areas of interest. The first site on the agenda was a project that showed the interesting use of plastic inlets by the city of Ocean City on Rusty Anchor Road. Nyloplast Plastic inlets were used on this project. Nyloplast is a custom PVC plastic drain basin for underground stormwater piping systems with diameters from 8" to 30.": they utilize heavy duty construction with ductile iron grates (H -24 rating) and PVC bodies that allow no corrosion or degradation. No field fabrication is necessary and the structures are light and fairly easy to install. They have watertight connections utilizing gasketed push-on joints.

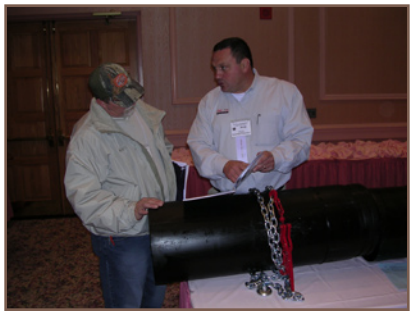
The rain and wind notwithstanding, we all braved the weather on the Route 90 (Ocean City Expressway) bridge behind the protection of traffic cones to listen to explanations from personnel on the project. At this stop the group saw major rehabilitation of bridge decks using milling and resurfacing. Ravi Gandvir from MD SHA related procedures for dealing with joints on the bridge decking.

The third project the group viewed was Americana Bayside, an example of what can be done with public/ private partnerships. An upgraded intersection was made possible through an agreement with the local



Construction at an upgraded intersection Americana Bayside project.


Rovver Pipe Inspection Machine


Andy Cary Isco/Snaptite demonstrates pipe lining system

EJ Breneman's Rudy Schmehl at ease (as usual)


Nyloplast

municipality, Fenwick. The overall project entails: the temporary roads, abandonment of existing state roads and construction of new state roads that will serve as the main collectors within the development, as well as, rehabilitation of several state roads leading into the site (utilizing cement stabilization).

We stopped at two locations: first, the realignment of Rt. 54 –Rt. 20 intersection. The second stop was inside the development where an existing road was removed and a new road with a new alignment constructed. The road into the second stop and the road out were two of the state roads that were being rehabilitated.

The weather was cold and rainy but a series of demonstrations was presented at various locations within a few blocks of the Conference Center. On 99th Street, Artco did a demonstration of crack sealing, an asphalt patching machine was demoed and the Rovver pipe inspection machine from G.E. Inspection Technologies was shown to the participants. The Rovver was a fascinating piece of equipment. The machine itself looked like lunar rover with treads for locomotion and a high resolution camera that is capable of video in very low light conditions. The Rovver can inspect problems in sections of culverts that are too small to enter. At the 100th Street Parking Lot Demonstration Gretchen Davison of Tensar demonstrated the reinforcement capabilities of geogrid materials with a simple but effective "Box of Rocks" experiment. Flexible forms for concrete sidewalks were also demonstrated by a group from Palm Coast, Fla.
Inside the Conference Center Bonnie Fields from PennDOT introduced the "Research and Innovation implementation" Program. Bonnie explained how the products being demonstrated were the result of innovation submissions, research projects or other department employee innovations. Frank DeSendis also from PennDOT discussed the Gis Road Closure Reporting system, a real-time web based application identifying state highway road closures.

Vendor booths were set up in areas where the audience partook of their breaks and also where the reception for the conference was held. A lot of communication took place among the vendors and attendees which benefited both groups.

Attendees were very happy with this year's program giving comments like:
"...this year's RMC was one of the best I've ever attended – maybe THE best. The variety of topics actually created a problem for me – and I'm sure, for others as well – in that I usually had to pick from at least 2 topics every breakout session."

A DIGITAL WORLD OF PAVEMENTS

A world of pavement information is now available with one click at www.fhwa.dot.gov/pavement. The Federal Highway Administration's (FHWA) new topic-based web site is the one-stop destination for information on everything from pavement design and construction to maintenance and rehabilitation.

Visitors can select a specific topic, such as design, or choose a focus area, such as "Optimize pavement performance," "Advanced quality system," "Pavement surface characteristics," or "Environmental stewardship." Also featured are listings for publications, software, upcoming conferences and events, and workshops and training, including National Highway Institute courses. Additional options for site users include looking up technical guidance and technology transfer resources, as well as information on pavement research.

Site visitors can also find links to pavement-related communities of practice, such as one on the Mechanistic-empirical Pavement Design Guide. A list of links to other useful web sites offers related sites in the categories of asphalt, concrete, recycling, and the Long-term Pavement Performance program. The site's comprehensive list of contacts include FHWA staff across the country, as well as State highway agencies' key personnel and contacts at various industry associations.

For information on specifi c pavement subjects, please contact the individuals listed by topic on the web site. For more information on FHWA's topic-based Web sites, contact Bob Hayes at FHWA, 202-366-4970 (email: robert.hayes@fhwa.dot.gov). A topic-based site is also available for hydraulics engineering (www.fhwa.dot.gov/engineering/hydraulics), with additional sites for other program areas under development.

Article Credit:
T^3S, Are We There Yet?, Winter 2006, Volume 17, Number 1.

SIMPLE, LOW-COST CHANGES CAN REDUCE URBAN CAR CRASHES

Did you know that 8,000 deaths and more than 1 million injuries occur each year on America's urban arterial roads? Many of these crashes are not just bad luck, but take place at predictable locations and involve predictable sequences of events leading up to the accidents. A new study by the Insurance Institute for Highway Safety shows that researching local arterial roads and making some relatively simple and inexpensive changes can drastically diminish the number of accidents that take place.

Richard Retting, senior transportation engineer at the Insurance Institute for Highway Safety says, "Urban arterials weren't built to accommodate today's heavy traffic. They've evolved as traffic has increased, and they haven't always evolved in the best way to enhance safety and ensure a smooth flow of traffic. It's a matter of studying the urban arterials to pinpoint where crashes are occurring frequently and then identifying potential solutions, looking first for less costly measures that can be implemented more quickly than major re-engineering." Retting led a study of suburban Fairfax County, Va., near Washington, D.C. Once problem areas were found, measures such as adding protected left-hand turn signals at problem intersections or moving a bus stop a few hundred feet dramatically reduced and sometimes eliminated crashes at those sites altogether. These measures were not very costly. Here is a summary of improvements made through the study over a period of two years:

TARGETED CRASH TYPE	AVERAGE CRASHES/YR. [BEFORE]	SOLUTION	AVERAGE CRASHES/YR. [AFTER]
Left Turn	8.7	added prtotected turn signal	0.0
Left Turn	4.6	added protected turn signal	0.0
Rear End	8.3	extended merge lane	3.0
Rear End	8.2	extended merge lane	0.9
Rear End	3.5	eliminated bus stop	1.4
Rear End	4.3	widened shoulder to accomodate bus stop	2.5

Article Credit:
T^3S, Are We There Yet?, Winter 2006, Volume 17, Number 1.

CURRENTLY SCHEDULED COURSES FOR 2006

The following courses have already been scheduled for 2006. 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.ence.umd.edu/mdt2center**.

WINTER MAINTENANCE

$75 all registrants
0 CEUs

Ed Stellfox
September 13, 2006, 8:30 AM – 3:00 PM
College Park, MD

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.

PAVEMENT MANAGEMENT SYSTEMS FOR LOCAL GOVERNMENTS

$95 State Government
$125 MD State Government
$150 Private and Out-of-State
0 CEUs

Alan S. Kercher, P.E.
October 17, 2006, 8:15 AM – 4:00 PM
College Park, MD

Pavement Management Systems (PMS) provide a systematic way for local officials to answer basic questions about their road systems to guide future improvement and investment. With commitment to a PMS, officials 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.

INTRODUCTION TO TEMPORARY TRAFFIC CONTROL

$100 MD Local Government Only
$150 MD State Government
$175 Private and Out-of-State
0 CEUs

Juan Morales
November 13, 2006, 8:00 AM – 4:30 PM
College Park, MD

An introductory course to temporary traffic control (TTC) in work zones, is a one-day course designed to give participants a complete overview of traffic control in work zones, including applicable standards, devices used, component parts and their requirements, and installation/ removal considerations.

WORK ZONE DESIGN

$200 MD Local Government Only
$275 MD State Government
$295 Private and Out of State
1.2 CEUs

Juan Morales
November 15-16, 2006
College Park, MD

The revised 2003 MUTCD is now the official document legally in force. It contains 316 significant changes from the 2000 (millennium edition) plus many minor changes. It is important for any one involved in the use and placement of traffic control devices to be knowledgeable about these changes and the related compliance dates.

ADDRESS UPDATE

The T² Center is continuously updating its mailing list. Please check your address above and fax new information and/or changes to [301] 403-4591.

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- ☐ Other
- ☐ Training Announcements
- ☐ Traffice Engineering
- ☐ Lighting
- ☐ Road Safety
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