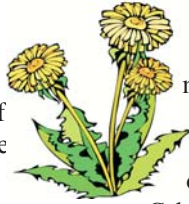


Roadside/Vegetation Maintenance Challenges Kentucky's Highway Crews

Carl Wells, Workshop Presenter
Kentucky Transportation Center

After a cold and rainy spring, most Kentuckians have been looking forward to a nice, warm summer. By this time of year, however, people are already sick and tired of mowing and maintaining their lawns because the grass grows so quickly! Those who are responsible for maintaining their yards can certainly empathize with the local and state highway maintenance crews who have to maintain over 325,000 acres of "yard" in the form of highway rights-of-way! This is a vast amount of real estate in Kentucky equaling the size of Grayson County, the eleventh largest county in Kentucky.



Major maintenance expenditures are made each year for the control of vegetation in mowing operations, chemical applications, and brush removal. According to officials at the Kentucky Transportation Cabinet, approximately \$30 million is spent annually for vegetation management. Budgets in local governments are also greatly impacted by this program.

The management of vegetation is an integral part of a highway maintenance program to provide safety to the traveling public, to prevent erosion, and to ensure that drainage structures are functioning properly. Properly maintained roadside vegetation also enhances the beauty of highway corridors by offering the motorist a pleasing roadside appearance.

There are many challenges facing highway officials today in vegetation management. Among these are brush encroachment, noxious weeds, and mowing needs. For many years, trees have steadily encroached toward the roadway surfaces to create major problems on public roads across the state. Noxious weeds have infested thou-

Continued on page 3

Carl Wells presents a session at the Center's workshop on Vegetation/Roadside Management. He and Doug Lusher work together to present this and the Pesticide training courses.



Prevention and Control of Lyme Disease

Now that summer is here, so are the ticks. You can do a lot to protect yourself--read on to find out how...

Avoid tick habitat

Whenever possible, avoid entering areas that are likely to be infested with ticks, particularly in spring and summer when nymphal ticks feed. Ticks favor a moist, shaded environment, especially areas with leaf litter and low-lying vegetation in wooded, brushy or overgrown grassy habitat. Sources for information on the distribution of ticks in an area include state and local health departments, park personnel and agricultural extension services. Tuck pants into socks to protect yourself from the bites of ticks and other vectors (an organism, such as an insect, that transmits bacteria or virus that can cause illness.)

Use personal protection measures

If you are going to be in areas that are tick infested, wear light-colored clothing so that ticks can be spotted more easily and removed before becoming attached. Wearing long-sleeved shirts and tucking pants into socks or boot tops may help keep ticks from reaching your skin. Ticks are usually located close to the ground, so wearing high rubber boots may provide additional protection.

From left to right:
The deer tick (*Ixodes scapularis*) adult female, adult male, nymph, and larva on a centimeter scale.



The risk of tick attachment can also be reduced by applying insect repellents containing DEET (n,n-diethyl-m toluamide) to clothes and exposed skin, and applying permethrin (which kills ticks on contact) to clothes. DEET can be used

Continued on page 4

Culvert Maintenance

Poorly working culverts can cause flooding that significantly damages roads and bridges.

A crushed or plugged culvert allows water to back up in roadside ditches, even during normal wet weather. This contributes to road deterioration because standing water prevents drainage from the road base and subgrade.

Municipalities should inspect culverts at least once a year. They should prioritize the needed repair and maintenance, and schedule it through the spring, summer and fall.

A guide to culvert repair is included on this page and a general maintenance schedule is outlined below.

Summer

- ◆ Remove blockages
- ◆ Clean and flush the length of the pipe
- ◆ Repair, improve or install headwalls, pipe ends and splash pads.
- ◆ Trim and remove brush at pipe ends and mow grass and weeds
- ◆ Cut and remove trees and limbs that threaten to fall and block upstream ditches
- ◆ Establish vegetation on bare slopes at pipe ends.
- ◆ Add fill to cover pipe more thoroughly

Fall

- ◆ Remove blockages

Spring

- ◆ Inspect inside as well as both ends of the pipe.
- ◆ Remove blockages (trash, brush, etc.)
- ◆ Mark headwalls or pipe ends for snowplow operators.

Reprinted with permission from Nevada Milepost, Vol. 12, No. 1, Spring 2002

GUIDE TO CULVERT REPAIR

<i>CULVERT ENDS</i>		
<i>What you observe</i>	<i>What may be the reason</i>	<i>How to fix it</i>
Scouring or erosion at the inlet	Ditch is too steeply graded. Pipe is poorly located or aligned. No headwalls. Pipe is clogged.	Line the inlet with stone. Realign the pipe. Install headwalls. Clean and flush the pipe.
Scouring or erosion at the outlet	Pipe is sloped too much. No endwalls or aprons. Outlet velocity is too high.	Build a stone splash pad. Install endwalls or aprons. Check design and replace pipe.
"Ponded" water	Inlet is too high. Ditch grade is too flat.	Match the inlet to the channel bottom. Reset the pipe and/or raise the channel. Regrade the ditch to maintain correct flow.
Dented or crushed ends	Vehicles or snowplows are hitting the ends.	Fix, mark and protect the pipe ends.
Heavy corrosion	Water flowing through the pipe is acidic.	Install a sleeve of PVC in the pipe, or replace with a PVC or concrete pipe.
"Piping" around outlet	Pipe is incorrectly installed, causing water to flow along the outside surface of pipe.	Reinstall the pipe on suitable, properly compacted bedding. Install a headwall or entrance device.
<i>INSIDE CULVERTS</i>		
Sediment buildup	Pipe carrying sediment inefficiently. Objects blocking the pipe to the culvert.	Determine sediment source and install erosion prevention measure to reduce sediment. Redesign and install pipe to carry sediments through it. Debris is traveling from the ditch. Remove the blockage. Install check dams upstream of the culvert.
Sagging bottom	Foundation material has settled or has low bearing capacity.	Reinstall the pipe on suitable, properly compacted bedding.
Crushed top	Cover is inadequate. Soil around pipe isn't compacted sufficiently and/or traffic load is too great.	Do one or more of the following: Add cover. Reinstall the pipe more deeply, and use suitable, properly compacted bedding and backfill. Install multiple small pipes or a pipe with a different shape. Replace pipe with a stronger one.
Heavy corrosion	Water flowing through the pipe is acidic.	Install a sleeve of PVC in the pipe, or replace with a PVC or concrete pipe.

Vegetation Maintenance
Continued from page 1

sands of acres of vegetated rights-of-way across the state causing concern from adjacent property owners. Continuing demands for mowing by taxpayers are ever present.

Remember, vegetation maintenance is the only highway maintenance activity that deals with living organisms so it must be dealt with during the entire growing season. Also remember that grass and trees grow at the same rate on an interstate right-of-way as on a low-volume, country lane--traffic volumes do not increase or decrease the need for maintaining vegetation. It's there and we have to maintain it to the best level possible for the safety of motorists and to maintain the integrity of the total highway infrastructure.

How to best cope with roadside vegetation maintenance

First, provide your employees with expertise in vegetation management through training. These employees can then assist other managers in developing programs and can offer technical advice. Second, to ensure the best return on maintenance expenditures for vegetation management, a well-planned program is essential. All employees must have the same goals and a uniform way of achieving those goals. A third objective is to stay current with new types of equipment and products that can improve your efficiency in vegetation maintenance programs.

Safety Tips for Vegetation Control by Mowing

1. Make sure the mowing crews have the proper training on using the equipment and are aware of the safety features.
2. Display the proper warning signage according to the *Manual on Uniform Traffic Control Devices* (MUTCD). To view the MUTCD online, link to the following web: <http://mutcd.fhwa.dot.gov/kno-millennium_12.28.01.htm>
3. Make sure all safety features on the mowing equipment comply with OSHA standards.
4. Stay off slopes steeper than 3:1.
5. Wear personal safety equipment such as a hard hat when mowing.
6. Face oncoming traffic as much as possible when cutting vegetation around signs or safety hardware near the edge of the roadway. Be alert at all times for a vehicle out of control or being driven too close to you.

Vegetation Management Training

The Center's Roadside/Vegetation Management training course, taught by Carl Wells and Doug Lusher, is a Road Master optional course but can be taken by anyone interested in this subject. It focuses on issues that relate to vegetation management. It includes discussions on topics such as plant species selections, establishment techniques and maintenance of vegetation. Also included are discussions on vegetation control, including chemical and mechanical methods; and the safe use of chemicals and equipment.

Sign up for the next Roadside/Vegetation Management course scheduled for October 28 in Bowling Green. Call Nicole at 1-800-432-0719, 859-257-4513 x 269 or visit our Web site at www.kyt2.com. Click on the Roads Scholar button on the left and then on the Roadside/Vegetation Management link.

Library Materials Available

While you're waiting for the course on roadside vegetation management in October, check out the videos and publications listed below that are available on loan from the Center's Library:

1. **Guide to Management of Roadside Trees**, FHWA-IP-86-17
2. **Accelerated Recovery of Native Vegetation on Roadway Slopes**, FHWA-DF-87-004
3. **Mowers, Parts I & II**, AV-V200
4. **Weed Sprayer**, Parts 1 & 2, AV-V380
5. **Keeping Current with Changes in Kentucky's Pesticide Law**, REF-Brochures

Kentucky Transportation Directory Changes

Please make the following changes to your copy of the Sixteenth Edition (2003) of the Kentucky Transportation Directory:

Page #	Correction
Page 25	Carter County Road Supervisor is Larry Stone (not Larry McDavid)
Page 31	Laurel County: <ul style="list-style-type: none"> ◆ Email should be: lefiscalcourt@alltel.net ◆ County judge's last name is spelled Kuhl ◆ Road Supervisor name is Harold Reams

By the way, if you know of any other changes, please call Nancy at the Center (1-800-432-0719 or 859-257-4513 x 231 or emailnrobinso@enr.uky.edu)

Lyme Disease Prevention & Control
Continued from front page

safely on children and adults but should be applied according to Environmental Protection Agency (EPA) guidelines to reduce the possibility of toxicity.

Use tweezers to remove ticks

Perform a tick check and remove attached ticks: The transmission of *B. burgdorferi* (the bacteria that causes Lyme disease) from an infected tick is unlikely to occur before 36 hours of tick attachment. For this reason, daily checks for ticks and promptly removing any attached tick that you find will help prevent infection. Embedded ticks should be removed using fine-tipped tweezers. DO NOT use petroleum jelly, a hot match, nail polish, or other products.



Use tweezers to remove ticks.

Grasp the tick firmly and as closely to the skin as possible. With a steady motion, pull the tick's body away from the skin. The tick's mouthparts may remain in the skin, but do not be alarmed. The bacteria that cause Lyme disease are contained in the tick's midgut

or salivary glands. Cleanse the area with an antiseptic.

Taking preventive antibiotics after a tick bite: The relative cost-effectiveness of post-exposure treatment of tick bites to avoid Lyme disease is dependent on the probability of *B. burgdorferi* infection after a tick bite. In most circumstances, treating persons who only have a tick bite is not recommended. Individuals who are bitten by a deer tick should remove the tick promptly, and may wish to consult with their health care provider. Persons should promptly seek medical



Tuck pants into socks to protect yourself from the bites of ticks.

attention if they develop any signs and symptoms of early Lyme disease, ehrlichiosis, or babesiosis.

Strategies to reduce tick abundance

The number of ticks in residential areas may be reduced by removing leaf litter, brush- and wood-piles around houses and at the edges of yards, and by clearing trees and brush to admit more sunlight and reduce the amount of suitable habitat for deer, rodents and ticks. Tick populations also have been effectively suppressed through the application of pesticides to residential properties. Community-based interventions to reduce deer populations or to kill ticks on deer and rodents have not been extensively implemented, but may be effective in reducing the community-wide risk of Lyme disease. New approaches such as deer feeding stations equipped with pesticide applicators to kill ticks on deer, and baited devices to kill ticks on rodents, are currently under evaluation.

Early diagnosis and treatment

The early diagnosis and proper antibiotic treatment of Lyme disease are important strategies to avoid the costs and complications of infection and late-stage illness.

Lyme disease vaccine

As of February 25, 2002, the manufacturer announced that the LYMERix™ Lyme disease vaccine will no longer be commercially available.

Reprinted from: Center for Disease Control and Prevention Web site <www.cdc.gov/ncidod/dvbid/lyme/prevent.htm>

Structural Steel “Teacher”

Article and photos by Donn Hancher, Ph.D., Construction Engineering & Management Professor, UK Civil Engineering Department

A new sculpture has recently appeared on the University of Kentucky's Lexington campus at the end of the Oliver H. Raymond Building, where the Center is located. It is a teaching sculpture sponsored by the American Institute of Steel Construction and is designed to help students understand the different shapes, configurations and



connections for structural steel structures.

The steel was fabricated and donated by Stupp Brothers Inc. located in St. Louis. The foundation was constructed by the Lexington Office of Messer Construction Company. The sculpture was erected by Donn Hancher's construction engineering graduate students in civil engineering and was painted by the UK paint shop.

TRAINING CALENDAR

2003

* Indicates Roads Scholar course # Indicates Road Master course **Indicates Central Standard Time Zone

July

8	*Managing People I	Holiday Inn, Ft. Mitchell
10	*Drainage: Key to Roads That Last	Center for Rural Development, Somerset
16	*Managing People VI	Blue Licks Battlefield State Resort Park
17	*Work Zone Traffic Control	Receptions Banquet & Conference Center, Erlanger
22	#Small Bridges	Center for Rural Development, Somerset
23	*Communications I	Center for Rural Development, Somerset
24	#Computer Familiarization	Elizabethtown Technical College
29	*Work Zone Traffic Control	Ramada Inn & Conference Center, Lexington
31	*Risk Management/Tort Liability	Center for Rural Development, Somerset

August

5	#Snow & Ice Removal	Ramada Inn & Conference Center, Lexington
6	*Traffic Management Through Signals, Signs & Markings	Center for Rural Development, Somerset
7	#Communications II	Ramada Inn & Conference Center, Lexington
11	*Construction of Concrete Pavements	Four Points Sheraton, Lexington
12	*Construction of Concrete Pavements	Four Points Sheraton, Lexington
14	#Developing Leadership Skills	Holiday Inn, Ft. Mitchell
19	*Kentucky Transportation 101	Holiday Inn, Ft. Mitchell
26	#Environmental Awareness	Center for Rural Development, Somerset
27	#Small Bridges	Ramada Inn & Conference Center, Lexington
28	*Drainage: The Key to Roads That Last	Blue Licks Battlefield State Resort Park, Mt. Olivet

September

4	#Computer Familiarization	Central Kentucky Technical College, Lexington
9	*Work Zone Traffic Control	Jenny Wiley State Resort Park, Prestonsburg
16	#Small Bridges	Ramada Inn & Conference Center, Lexington
18	*Managing People I	Kentucky Dam Village State Park, Gilbertsville**
23	*Communications I	Holiday Inn, Ft. Mitchell
24	*Basics of Hot-Mix Asphalt Highway Construction	Holiday Inn, Ft. Mitchell
25	#AAA Defensive Driving	Ramada Inn & Conference Center, Lexington
30	*Kentucky Transportation 101	Jenny Wiley State Resort Park, Prestonsburg
30	*Managing People II	Holiday Inn, Ft. Mitchell

October

2	#Computer Familiarization	Central Kentucky Technical College, Lexington
2	*Managing People I	Holiday Inn Airport East, Louisville
7	*Risk Management/Tort Liability	Jenny Wiley State Resort Park, Prestonsburg
9	#Communications II	Kentucky Dam Village State Park, Gilbertsville**
14	#Environmental Awareness	Ramada Inn & Conference Center, Lexington
15	*Kentucky Transportation 101	Center for Rural Development, Somerset
16	*Traffic Management Through Signals, Signs and Markings ..	Kentucky Dam Village State Park, Gilbertsville**
21	*Managing People III	Center for Rural Development, Somerset
22	#Developing Leadership Skills	Center for Rural Development, Somerset
23	*Work Zone Traffic Control	Blue Licks Battlefield State Resort Park**
28	#Roadside/Vegetation Management	Drury Inn, Bowling Green
30	#Snow and Ice Removal	Receptions Banquet & Conference Center, Erlanger

- Check our Web site for calendar additions and changes: <www.kyt2.com>
- For more information about any of these courses, call the Center at 1-800-432-0719 or 859-257-4513

Stabilizing Gravel Roads

Reprinted with permission from Colorado LTAP Newsletter, University of Colorado at Boulder

Gravel roads are unpaved driving surfaces that generally serve low traffic volumes, and dust is usually an inherent problem. The amount of dust a gravel road produces varies greatly, but in arid regions exposed to prolonged dry weather, the problem is greatly increased.

The quality and type of gravel can also have an effect on the amount of dust that is produced. Some limestone gravels can dust severely while some glacial deposits of gravel with a portion of highly plastic clay can take on a strong binding characteristic that will resist dusting remarkably well.

Types of Stabilizers

Chlorides - They fall into three categories: Calcium Chloride, Magnesium Chloride and Sodium Chloride (road salt). Calcium and Magnesium Chloride can be very effective if used properly. They are hygroscopic - they draw moisture from the air and keep the road surface constantly damp.

Resins - Available under various commercial names, the basic composition is lignin sulfonate, which is a by-product of the pulp milling industry. Providing cohesion to bind the soil particles together, products of this type work best when incorporated into the surface gravel.

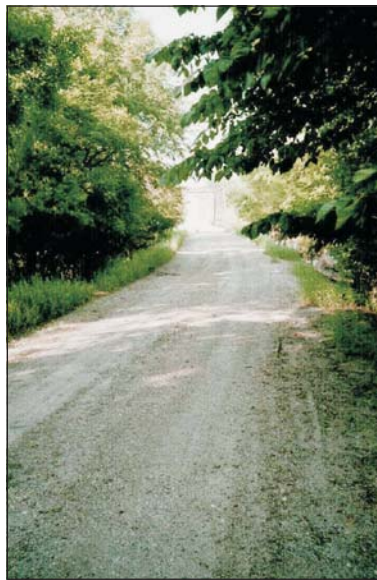
Natural Clays - Although many regions have excellent deposits of natural clay that are highly plastic and provide strong cohesion, these roads will seldom be completely dust-free in areas of prolonged dry weather. It can be difficult to haul and mix into the gravel, and often sticks to the truck boxes.

Asphalts - The use of cut-back liquid asphalts to surface-treat gravel roads was once popular for dust control. However, because of the amount of fuel oil or kerosene in these products, they have been banned in many places. Some emulsified asphalts

may work for this purpose, but their use is very limited.

Soybean Oil - Also known as Acidulated Soybean Oil Soapstock, this is a by-product of the caustic refining process of soybean oil. A biodegradable material that has many of the characteristics of a light petroleum-based oil, it will penetrate the gravel surface and provide a light bonding of the gravel effectively reducing dust when it is properly used.

There are many other commercial binders available. It is suggested to try a test section of no more than 1,000



feet in length to see how any of these products work with your gravel. One caution: do not use waste products such as crankcase drain oil from engines! This is harmful to the environment and is in violation of EPA rules.

Benefits of Stabilization

Once a road is stabilized, there are several benefits. Roads experiencing high traffic volumes can make stabilization very cost-effective. The following is a short list of these benefits.

Reduced Dusting - Controlling the loss of fines can be a great economic

benefit. When fines are lost from a gravel surface through dusting, the stone and sand-sized particles will tend to remain loose on the surface, leading to distress such as washboarding and reduced skid resistance.

Reduced "Whip Off" of Aggregate - Similar to the control of dusting fines, stabilization can help the stone portion of the gravel to remain embedded in the surface and will not be lost to the edge of the road or even whipped off onto the inslope from heavy traffic. Studies have shown that as much as one ton of aggregate per mile is lost each year for each vehicle that passes over a road daily.

Reduced Blade Maintenance - A bound and stable road surface requires much less blade maintenance. While extra blading, shaping and mixing is needed to prepare a road for dust control, the overall need for blade maintenance should be greatly reduced.

Application Tips

The *Gravel Roads: Maintenance and Design Manual*, developed by the South Dakota LTAP Center and the Federal Highway Administration, discusses basic application tips addressing the following areas: Need for Good Surface Gravel; Road Preparation; Applying the Product; Optimum Moisture; and Test Sections.

For more detailed information regarding Dust Control and Stabilization, please refer to the *Gravel Roads: Maintenance and Design Manual*.

This article was developed by the Colorado LTAP Center from the Gravel Roads Manual.

To borrow the CD or paper copy of the Manual, call the Center's library at 800-432-0719 or to view it online, log onto: <www.epa.gov/owow/nps/gravelman.pdf>

NEW TRAINING OPPORTUNITY FROM T²

Erosion and Sediment Control Workshop

The Technology Transfer Program is designing a workshop that will examine how erosion and sediment control impact the environment. The workshop will focus on federal, state and local regulations, the "legal issues" and the components of an erosion and sediment control plan.

Soil erosion is inevitable! Natural soil erosion produces about 30 percent of the total sediment in the United States, while "accelerated" soil erosion from man's use of land accounts for the remaining 70 percent. Surface mining, forestry, agriculture and construction are the major activities that cause accelerated erosion. Erosion is also a major problem when an area is undergoing urbanization and changing natural landscapes to accommodate houses, subdivisions, shopping centers, and roads in rural areas, or development and redevelopment within cities and towns.*

At some time, your agency will be involved with soil erosion problems--find out how these problems can be minimized by implementing erosion and sediment control measures. Participants will learn how to solve typical construction and inspection problems, and will learn prevention strategies and remedies for failures. Participants will learn the best type of control practices, e.g., silt fences, check dams and vegetative coverings.

Duane Campbell, County Engineer with the Boyle County Road Department, is working with the T² staff to develop and present this course. Watch for the upcoming workshop announcements in the next edition of *The Link*.

* Reference: Some information for this article was excerpted from the Web site: <www.dcr.state.va.us/sw/e&s.htm> *Erosion and Sediment Control Program*, Virginia Department of Conservation and Recreation

Attitude

A pessimist is one who makes difficulties of his opportunities and an optimist is one who makes opportunities of his difficulties.

---Harry Truman

And the Winners Are...

Winners of the Kentucky Chapter American Public Works Association (APWA) 2003 Awards Program were announced at the Annual Fair and Equipment Show on June 18-20 at the Airport Marriott Convention Center, near Cincinnati. The following awards were presented at the banquet:

APWA EMPLOYEE OF THE YEAR AWARD

Chester Denny, Louisville Metro Public Works Dept.

OUTSTANDING CONTRACTOR

Michels Construction, Ft. Wright

OUTSTANDING DESIGN CONSULTANT

Robert Ehmet Hayes & Associates

PROJECTS OF THE YEAR

Building Category

Boone County Justice Center

CMW Architects; Codell Construction; Cost: \$15 million

Environmental Category

Morris Foreman Wastewater Treatment Plant

Parrish Assoc. Engineers--Solid Waste to Fertilizer; Cost: \$82 million

Utility Category--Water Transmission Line

Boone County and Florence Water Commission

CDM Engineers-Louisville; Koksing Construction-Frederick, Ohio; Cost: \$43 million

Historic Preservation Category

Boyle County Courthouse Clock Tower

Tate, Hill, Jacobs Architects; Casey Creek Construction; Cost: \$2 million

Technology Category

Louisville Metro Traffic Signal System

FHWA and Kentucky Transportation Cabinet Traffic Control System (580 Signals); Cost: \$8.3 million

Right-of-Way Management Category

Dishman Lane Cave Collapse Repair

Geotechnical Exploration-Western KY University/Center for Cave & Karst Studies. FMSM selected engineering fill. Scotty's Construction began repair July 2002.

Continued on page 11



Slick Idea for Stopping Sign Thieves

From Don Schumacher, Town Chairman in Rush River, St. Croix County, Wisconsin, comes this inexpensive idea for foiling sign vandals.

“We had one street that was being vandalized regularly. It happened four times in one year and it was costing us \$200 or more to replace them each time. The last time it happened, we decided to weld an extra section on the sign post to make it taller and then we greased it.

“We used the messiest, dirtiest, black axle grease we could find. We figured if they did it again all we’d have to do is look for someone with a black streak down the front of their jacket. Six months later, we haven’t lost a single sign on that road.”

Reprinted with permission from Crossroads, Spring 2003, Wisconsin LTAP Center.

Another Goodbye...

Melissa Adkins has only been with the Center for a few months but has decided to stay home to raise her first baby (she and her husband Shane are expecting this fall). Melissa coordinated the Roads Scholars and Road Masters workshops. We will miss her smile and friendship as well as her hard work. We wish them the best!

Annette Smith, Special Projects Coordinator, will take over most of Melissa’s responsibilities.

If you have any questions on any of the Roads Scholar/Road Master workshops or to schedule an on-demand workshop, give Annette a call at 800-432-0719 or 859-257-4513 x277 or email her at <aasmit3@enr.uky.edu>.

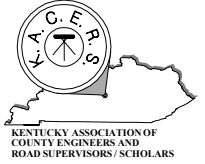
Solving the Watershed Puzzle

Kentucky’s First Watershed Roundtable Conference, scheduled for August 19-20 in Lexington, is designed to raise awareness of watershed issues and resources, build trust and linkages among partners to leverage resources, and provide tools to support watershed and community development.

For more information or to register, contact Lee Colten, Kentucky Division of Water, at 502-564-3410 (email: lee.colten@mail.state.ky.us or Judy Petersen, Kentucky Waterways Alliance, at 270-524-1774 (email: Director@KWAlliance.org.



KACERS Addresses Disaster Debris Removal



The Kentucky Association of County Engineers and Road Supervisors/Scholars (KACERS) recently coordinated and presented “Preparing for Disaster in Your Community--Disaster Debris Removal: How to Properly Handle Waste/Debris to Protect the Public and the Environment.” There were 62 participants at the presentation, which was free to KACERS members and local government officials. It was taught by **Pauline Allen**, Solid Waste Coordinator for Henderson, Webster, and Union counties. She included lessons learned from the F4 tornado which devastated Providence, Kentucky, on April 28, 2002.

Sara Evans with the Division of Waste Management Local Planning and Assistance presented “Working Together to Clean Up Kentucky: Natural Resources and Transportation Cabinet.” She explained new state laws, programs and funding targeted towards cleaning up illegal dumps and litter. She detailed how each county can get reimbursed for the money they spend in this effort.

For more information or to join KACERS, call **Annette Smith** at the Center at 800-431-0719 or 859-257-4513 x277; or fax her at 859-257-1061; or email her at aasmit3@enr.uky.edu.

Publication Statement

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*Nancy Robinson, Newsletter/Publications
Editor*



How to Snuff Out Spam

Whether you are watching television, listening to the radio or going to the movies, you cannot avoid advertisements. Now the Internet is full of advertisements. Unwanted cyberads, known as spam, are here to stay. There are things you can do to minimize the amount of spam you get. The following is a list of ways to keep spam from clogging up your email:

1. Set up a separate email account for spam. Whenever you sign up for mailing lists and newsgroups or shop online, use this second account address. Most spam will then go there and not to your other accounts, which you should use for personal and work communications only. Web based email accounts, like Hotmail, are free so you will not incur extra costs when you establish a spam-only account.
2. Try “munging” whenever you fill out online registration forms. Munging means altering your real email address so it will not end up on some advertiser’s mailing list.
3. Delete and do not reply to spam, even to request that the sender stop spamming your account. A reply lets the sender know your account is active and may result in even more spam. Some spam contain Web bugs that let the sender know you have opened it, so it is better to just delete all unsolicited messages.
4. Try programming your email to filter out any message that contains certain characters like dollar signs, exclamation points or even entire spam-typical words and phrases, such as hot and make money fast. If you find that you’re getting a lot of spam from particular domain names, you can try blocking all messages from that domain.
5. Try using a spam filter provided by your ISP.
6. Remove your name and email account from Internet directory databases. Check periodically to see that your personal information remains unlisted.
7. Change your email address every six months if the spam is getting out of control.

Adapted from *Technology Survival Guide* (Reprinted from *First Draft*)

Wonders of the Web . . .

Great sites where you can obtain useful information

1. **Universal Currency Converter** (This easy-to-use Web site allows you to perform interactive foreign exchange rate calculations on the Internet, using live, up-to-the-minute currency rates): <www.xe.com/ucc/>
2. A **dictionary of units of measurements** (especially useful for those obscure or historical units of measurement like hogshead or nebuchadnezzar): <www.unc.edu/~rowlett/units/>
3. **Preventing Rural Traffic Accidents with ITS**: <www.nawgits.com/nado/preventing_rural_accidents.htm>
4. This fun site was created for **teen drivers** in Pennsylvania, but any driver can find stories about drivers just like themselves--and learn how to improve their driving skills: <www.dmv.state.pa.us/crossroads/index.html>
5. FHWA’s Office of **Bridge Technology** Web site provides information on FHWA’s geotechnical program, including publications, software and training: <www.fhwa.dot.gov/bridge/>
6. Natural Resources Conservation Service (U.S. Department of Agriculture) Web site about **soils**: <<http://soils.usda.gov/>>
7. **Trenchless Technology** Center at Louisiana Tech University Web site promotes research, development and technology transfer in the trenchless technology industry. It discusses the availability and capability of trenchless methods for the solution of difficult underground infrastructure problems: <www.latech.edu/tech/engr/ttc/>
8. National Agenda for **Intersection Safety**: <<http://safety.fhwa.dot.gov/fourthlevel/intersafagenda.htm>>
9. Safety Conscious Planning: The Next Generation of **Transportation System Safety Strategies**: <www.fhwa.dot.gov/planning/scp/scpazfrm.htm>
10. Comprehensive library of Internet resources in **geotechnical engineering**: <www.ejge.com/GVL/>
11. **Recycled Materials** Resource Center: <www.rmrc.unh.edu>
12. American Iron & Steel Institute (info on **steel bridges**): <www.steel.org/infrastructure/bridges>



Check out your world

AT THE LIBRARY

Laura Whyne, Librarian
1-800-432-0719 or 859-257-4513, ext. 234
Email: lwhyne@engr.uky.edu
Fax: 859-257-1815

New materials to borrow

Videos and CD-Roms

1. AV-CD121 **Advanced Rural Transportation Systems: Rural Challenges, 2000**
2. AV-CD206 **Cutting Through the Dust: Dirt and Gravel Road Maintenance, 2002**
3. AV-V750 **Mobile Work Zone Operations, 2001.** (13 min.--Planning and setting up for mobile work zones.)
4. AV-V914 **Public Works Mutual Aid Program,** (12 min. -- Agreement between communities to assist each other during extreme weather or emergencies.)
5. AV-V868 **Red Light Green Light: Intersection Safety, 2002.** (8 min.--Stresses intersection safety.)
6. AV-V807 **Tips from the Pros: Backhoe Loader, 2001.** (16 min.--Safe and efficient operation of the backhoe loader.)
7. AV-V895 **Tips from the Pros: Crawler Dozer, 2002.** (18 min.--Safe and efficient operation of the crawler dozer.)

Free Materials

1. **Bicycle Facility Design Workshop: Participant Manual.** Kentucky Transportation Cabinet, 2000.
2. **Building On the Past Traveling To the Future: A Preservationist's Guide to the Federal Transportation Enhancement Provision.** DOT FHWA and National Trust for Historic Preservation. (2nd Edition).
3. **Guide for the Development of Bicycle Facilities.** AASHTO, 1999.
4. **Kentucky Takes the Road Less Traveled: Kentucky Historic Preservation and the Transportation Enhancement Program.** Kentucky Heritage Council and Kentucky Transportation Cabinet, 2001.
5. **Mobility & Safety: Compendium of Work Zone Research, Development, and Technology Transfer Projects, 1997 to 2002.** DOT FHWA. FHWA-OP-02-053. 2002.

Publications

- TE228.B372002 **Basic Traffic Control for Utility Operations: Guide to Temporary Traffic Control for Utility Operations.**
- KRR-KTC-01-11 **Countermeasures for Fatal Crashes on Two-Lane Rural Roads, 2001.**
- HE206.2.C352003 **Environmental Justice and Transportation: A Citizen's Handbook.**
- FHWA-OP-01-003 **How Can We Work Together? 2001** (A Guidebook to Smart Response through Coordinating Local Public Safety & Transportation, Communications & Technology.)
- KRR-KTC-00-16 **Night-Time Construction Issues, 2000.**
- KF2230.Z95S32002 **Protecting Children: A Guide to Child Traffic Safety Laws.**
- CTS-02-150206-1 **Red Light Running: A Policy Review.** 2003.
- TE228.R632002 **Roadway Safety: A Road Construction Industry Consortium Training Program.** (Vol. 1 - Instructor Manual; Vol. 2 – Trainee Booklet)
- KRR-KTC-00-14 **Safety Improvements for Two-Lane Rural Roads, 2000.**
- FHWA-EP-01-033 **Serving Rural America, 2001.** (Provides information about U.S. Department of Transportation programs that are targeted to or have special uses for rural America.)
- SB106.V43W5 **Tree and Brush Control for County Road Right-of-Way, 2002.**
- FHWA-OP-00-010 **Work Zone Operations: Improving Mobility and Safety on Both Sides**

Neighborhood Traffic Control

Traffic engineers and other problem solvers in almost every city have experienced neighborhood traffic problems. They have come to recognize that there is often no single solution. The North Central Section of the Institute of Transportation Engineers (NCITE) has compiled a list of environmental issues and safety. These techniques offer a variety of potential alternatives with which to creatively solve problems in partnership with the neighborhoods and elected officials. Call the Library to borrow this publication.

Sharing KTC Research Findings

Visit the Center's Web site <www.ktc.uky.edu> to download and read these or call the Center's Library at 1-800-432-0719 to borrow a copy.

Assessment and Modeling of Stream Mitigation Procedures (KTC-03-14/SPR193-98-1F)
by Bernadette Dupont and Sudir Palle May 2003

When a stream is altered due to highway construction or modification, government regulations require that the affected area be repaired similar to what it was before. This is particularly important in Kentucky because this state ranks second in the United States for having the most miles of waterways. Stream mitigation has become a significant factor in roadway construction costs. The Kentucky Transportation Cabinet requested this study because no studies had been performed to determine the results of stream mitigations.

A literature search did not reveal any state or local regulations for stream disturbance mitigation. Several agencies have developed guidelines but there are no hard and fast rules. There are numerous models, but none of them are specifically geared toward stream disturbance mitigation.

A field handbook was developed to aid the evaluator in gathering data on stream mitigation projects. It is recommended that this tool be used for future stream mitigation evaluations.

Kentucky's Department of Environmental Analysis selected five representative stream mitigation sites for assessment. The assessments conducted on all five sites included physical, chemical and biological data. In addition, fish assessments were conducted by the University of Kentucky's Biology Department on the two largest sites. Assessments on all data were made.

Investigation of the Impact of Large Trucks on Interstate Highway Safety (KTC-02-05/SPR248-02-1F) by Ken Agent and Jerry Pigman

The objectives of this study were to investigate the impact of trucks on interstate travel and offer recommendations for improving safety. The procedure involved reviewing the literature, analyzing crash data, discussing the existing situation with the trucking industry, and using the information to develop a list of countermeasures to reduce the number and severity of truck crashes on interstates. The countermeasures were grouped into the general areas of: 1) the roadway environment, 2) the truck, and 3) the driver. The crash data also were analyzed to identify spots and sections on the interstates that had the highest number and rate of truck crashes.

Sharing KTC Research in Progress

Effect of Pavement Resurfacing on Traffic Safety (KTC-03-257) by Jerry Pigman

Hundreds of miles of various types of roads are resurfaced with an overlay each year in Kentucky. A review of fatal crashes on two-lane rural roads indicated that several countermeasures identified in the analysis could be implemented with the resurfacing program. However, a resurfacing project on a two-lane, rural road cannot be expected to bring the roadway up to the level of a reconstruction roadway. A more detailed examination of case study sites will permit determination of potential benefits including various safety improvements as part of resurfacing projects. The objective of this study is to analyze the before-and-after crash history, speed, and volumes on routes that have been resurfaced. This will determine which improvements should be made in conjunction with the resurfacing project to improve the overall safety of the roadway.

APWA Winners
Continued from page 7

Right-of-Way Management Category (over \$1 million)

Polystyrene Foam Fill

Corps of Engineers/TVA; Fuller Mossbarger Scott & May

Transportation Category (under \$1 million)

Louisville Metro-Whit topping

Metro Louisville--Special Construction Office;
\$80,000 Materials cost

Transportation Category (under \$5 million)

Browns Lane Reconstruction

Quest/Rudy Engineers; T&C Construction
Cost: \$2.5 million

Transportation Category (over \$5 million)

Paris Pike Reconstruction

H. W. Lochner Engineers, Jones & Jones Landscape Architects, Burry & Amos Historic Preservation
(Project is 90 percent complete)

Environmental Analysis Category

Ohio River Bridges

CTS - \$22 million study; relocate Spaghetti Junction

Southeastern Local Roads Conference

The Southeastern Local Roads Conference (SELRC) will be held in Asheville, NC, October 12-14, 2003. The meeting is a collaboration of the Federal Highway Administration (FHWA) and the Southeastern LTAP centers, which include AL, FL, GA, KY, MS, NC, PR, SC and TN.

The local roads conference is targeted to those whose work impacts the movement of persons and goods on local roads. It also provides the opportunity to share success stories and innovative advances in transportation planning, traffic safety operations, roadway design, maintenance, and construction.

The SELRC will be held at the Great Smokies Holiday Inn-SunSpree Resort in Asheville, NC. Room rates are \$99 per night, plus tax.

For more information contact Pam Cloer at 919-515-7990 or <pcloer@unity.ncsu.edu> or check out the SELRC Web site at: <www.itre.ncsu.edu/LTAP/SELRC.html>



Can't afford to send employees to us for training? Let us come to them!

by Martha Horseman, Training Manager

As budgets get tighter around the state, it is important not to forget that the value of training doesn't lessen. To eliminate the travel and lodging expenses of sending employees out of town for training, the Center's LTAP (Local Technical Assistance Program) offers "on-demand" training. These are full-day workshops (8:30 - 3:00) presented at your agency to a minimum of 15 (maximum of 40) participants.

An On-Demand workshop can be presented at your location for a cost of \$1200/\$1400 per day for local/state agencies, which is \$35 for each participant based on a 40-person workshop. You provide audio/visual and other needed equipment and refreshments for breaks. Most of the Roads Scholars and Road Masters courses can be presented or, if you have a special training need, contact us and we may be able to develop training to meet that need.

Each participant receives workshop materials and a certificate (and a flagging card for those who attend *Work Zone Traffic Control*). The agency will receive a participant list, sign-in roster for their records and evaluation summary.

This is a great opportunity to start your employees working on the Roads Scholar and/or Road Master Training Program.

What's Inside

<i>Culvert Maintenance</i>	Page 2
<i>Transportation Directory Changes</i>	Page 3
<i>Structural Steel "Teacher"</i>	Page 4
<i>Training Calendar</i>	Page 5
<i>Stablizing Gravel Roads</i>	Page 6
<i>Erosion & Sediment Control Workshop</i>	Page 7
<i>And the winners are...</i>	Page 7
<i>Slick Idea for Stopping Sign Thieves</i>	Page 8

<i>Another Goodbye</i>	Page 8
<i>Solving the Watershed Puzzle</i>	Page 8
<i>KACERS addresses disaster debris removal</i>	Page 8
<i>How to Snuff Out Spam</i>	Page 9
<i>Wonders of the Web</i>	Page 9
<i>Library Page</i>	Page 10
<i>Sharing KTC Research</i>	Page 11



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