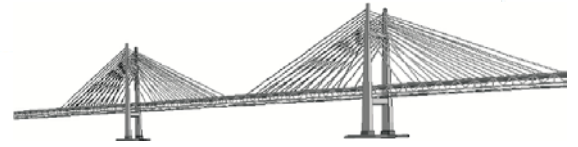


T²...Like a bridge over troubled waters

A few years ago, country singer LeAnn Rimes recorded Simon & Garfunkel's classic song "Bridge over Troubled Waters" which emphasizes that when times get rough, she's on your side and will be your friend. We'd like to use that analogy because times have gotten rough for most transportation agencies, and we hope you will consider the Center's T² program your friend. Please look over this article as a reminder of how we're on your side to help see you through many of the "troubled waters" facing today's transportation agencies.



The Technology Transfer (T²) Program bridges the gap between training and information needs and tight budgets for Kentucky's transportation agencies. T² can provide workshops and training events, how-to manuals, expert advice, legislative and regulatory news, on-site technical assistance, and access to the only transportation library in the state.

We receive funding from the Federal Highway Administration's Local Technical Assistance Program (LTAP) as well as support from our partners, the Kentucky Transportation Cabinet and the University of Kentucky.

Continued on page 6



A roundabout was built on Reynolds Road (road that runs beside the Fayette Mall) in south Lexington. According to Leo McMillen, head of Streets and Roads Department for the city, the roundabout has slowed traffic down and has improved traffic flow. He said the street department had to add a large mound of dirt and landscaping to prevent cars from driving across the roundabout when it was built as drivers still wanted to go straight. He said one more road can be built onto it in the future. He said, "That roundabout is much better than a traffic signal."

Roundabouts--a tool for building safer highways

As you travel across the nation this year, you are likely to encounter a relatively new and revolutionary form of roadway intersection not many Americans have yet experienced: a modern roundabout. They are popping up all across the United States from Clearwater, FL, to Hilton Head, SC, to Annapolis, MD, to Vail, CO. They are even being built right here in Kentucky so, it is important to understand why roundabouts are being used and how to safely drive them.

In the past, several forms of circular intersections such as traffic circles, rotaries and town

by Brent A. Sweger, P.E., Transportation Planner, Kentucky Transportation Cabinet Division of Multimodal Programs

"squares" have been used on U.S. roadways; however, there were many problems associated with them. There was no standard way of building them and often a high number of crashes and delays resulted from their implementation. As a result, the roundabout, a modern circular intersection design, was developed to rectify these problems. Depending on the amount of traffic, they may be built with either a single lane or with two lanes going around the

Continued on page 9

How roundabouts make highways safer ... See next page

How roundabouts make highways safer

by Nick Stamatiadis, PhD, P.E., Civil Engineering Professor, University of Kentucky

A roundabout is a form of intersection control that has received limited use in the United States. The modern roundabout is different from the traffic circle or rotary that has been used in the past in various countries and in the United States in two basic aspects. First, the entering traffic has to yield the right-of-way to the circulating traffic, and second, horizontal curvature is introduced at the entry points of the roundabout. Many countries have adopted this intersection control, which is recommended by the Federal Highway Administration (FHWA).

Roundabouts are generally safer than other forms of intersection traffic control. Various levels of safety gains have been achieved with the installation of roundabouts and they are site-specific, but the overall trends are positive. Past research both in the United States and Europe indicate that reductions in the range of 50-70 percent are common for injury and fatal crashes. Studies in Europe also suggest that there is a reduction in pedestrian crashes as well.

There are two aspects of the roundabout design that result in these safety gains. The first is due to reduction of the number of conflict points present at an intersection. A typical four-leg intersection has 32 conflict points. Signalization can reduce these by 50 percent (16 points or 8 per phase for a 2-phase signal) while roundabout installation reduces them by 75 percent (8 points) as the drawing shows. The second is the need for traveling at lower

speeds to negotiate the turning movements and thus any crashes that may occur will have a lower severity level.

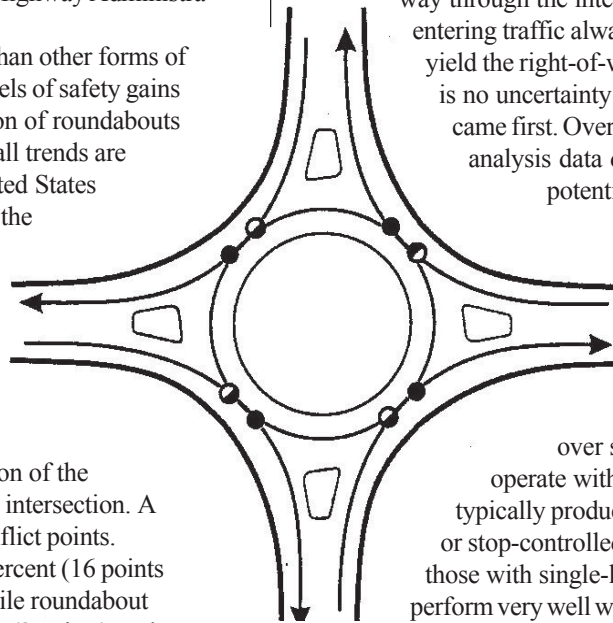
An additional advantage of roundabouts over all-way-stop-controlled intersections is the elimination of driver confusion on who has the right-of-way through the intersection, since entering traffic always has to yield the right-of-way and there is no uncertainty as to who came first. Overall the safety analysis data demonstrate the potential for safety

improvement from roundabouts and it points to the need for greater usage in the United States.

Roundabouts also can improve intersection capacity over signalization. When they operate within their capacity, roundabouts typically produce lower delays than signalized or stop-controlled intersections. In particular, those with single-lane approaches seem to perform very well with volumes of up to 25,000 vehicles per day due to their simplicity. This volume is the total amount of traffic entering the intersection and the capacity gains are dependent on the distribution of traffic between the intersecting roads. For intersections where a signal may be warranted, a detailed analysis is required to compare the two alternative designs. However, past research shows that single-lane roundabouts will perform better for volumes up to 25,000 vehicles per day (total entering traffic) and two-lane roundabouts will demonstrate similar savings for volumes up to 34,000 vehicles per day (total entering traffic). Another aspect that influences delay gains between a roundabout and other forms of traffic control is the percent of turning movements, particularly left turns. For most scenarios, the delay savings increase as the left-turn percentage increases. This is more the case for comparisons between signalization and roundabout.

To increase capacity within the roundabout, multi-lane approaches and signalization have been used, which may affect safety levels. Another means for increasing capacity is the provision of exclusive right-turn lanes or bays (slip lanes) at the appropriate roundabout approaches. Roundabouts are

Continued on page 6



Part of Hilltop Avenue on UK's campus in Lexington was closed off to thru-traffic and a single-lane roundabout installed. It allows traffic to safely enter and exit the permit-only parking structure and also allows those drivers who don't realize it is a permit-controlled structure until they're there to easily turn around and not have to back out.

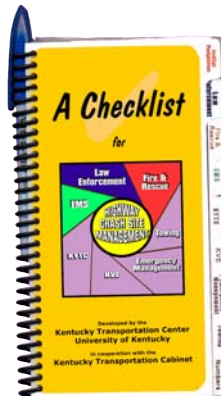
More Training Opportunities!

Highway Crash Site Management workshop

Kentucky has developed a Highway Crash Site Management workshop for emergency response personnel to improve response, management and clearance of a crash.

This interactive workshop was developed to bring the primary responders together and help them understand the importance of a unified, coordinated effort when managing and clearing a highway crash. It is specifically tailored for the region of the state in which it is being presented.

Participants are provided a key action Checklist that identifies responsibilities and resources of responding agencies. Topics of discussion include: the incident command system, placement of emergency vehicles, towing companies, traffic control, motorist information, terrorism, lighting on emergency vehicles, crash scene investigation, communications and quick clearance. Case studies are presented and critiqued by the trainers and participants. For more information, contact Monica Barrett or Annette Smith at 859-257-4513 or 800-432-0719.



Please register for the workshop for your area only.

Highway Crash Site Management courses in 2003:

- Nov. 6 Big Sandy ADD
- Dec. 4 Cumberland Valley ADD

Highway Crash Site Management courses in 2004:

- Jan. 14 Mason County Extension Office (for Buffalo Trace ADD)
- Feb. 5 Bath Co. Lions Club Bldg. (for Gateway ADD)
- April 7 Cntr for Rural Development, Somerset (for Lake Cumberland ADD)
- June 3 Hazard Community College (for Kentucky River ADD)

Additional pesticide training courses scheduled



Every licensed, non-commercial, pesticide applicator must obtain twelve hours of continuing education units (CEUs) in a three-year period to maintain certification. We can help you get some of that training. The Center has developed a one-day Pesticide Continued Training III that is approved by the Department of Agriculture to accommodate Category 6 (Right-of-Way Pest Control) and Category 3 (Ornamental and Turf Lawn Care) licensed applicators. These workshops will be presented across the state this fall and winter (See below).

Registration fee is \$80 per person and includes breaks, lunch and materials. State employees wishing to register need to contact their District Training Coordinators. All others may register online (<www.kyt2.com> click on Training and Testing button on the left) or by phone (800-432-0719 or 859-257-4513 x 269) or by fax (859-257-1061).

Pesticide certification and license questions should be directed to the Department of Agriculture at 502-564-7274.

Pesticide courses scheduled in 2003:

- Oct. 27 Drury Inn, Bowling Green
- Oct. 29 Drury Inn, Bowling Green
- Nov. 5 Ramada Inn, Lexington
- Nov. 6 Ramada Inn, Lexington
- Nov. 10 Center for Rural Development, Somerset
- Nov. 17 Lake Barkley State Resort Park
- Nov. 18 Lake Barkley State Resort Park
- Nov. 19 Kentucky Dam Village State Resort Park
- Nov. 20 Kentucky Dam Village State Resort Park
- Dec. 1 Pennyrile Forest State Resort Park
- Dec. 2 Pennyrile Forest State Resort Park
- Dec. 3 Rough River Dam State Resort Park
- Dec. 4 Rough River Dam State Resort Park
- Dec. 5 Rough River Dam State Resort Park

Pesticide courses scheduled in 2004:

- Jan. 6 Jenny Wiley State Resort Park
- Jan. 7 Jenny Wiley State Resort Park
- Jan. 8 Jenny Wiley State Resort Park
- Jan. 13 Receptions Banquet & Conf. Center, Erlanger
- Jan. 14 Receptions Banquet & Conf. Center, Erlanger
- Jan. 20 Natural Bridge State Resort Park
- Jan. 21 Natural Bridge State Resort Park
- Jan. 22 Blue Licks Battlefield State Resort Park

Nationally, safety-belt use at 79 percent--the highest in history

Safety belt use in the United States has reached 79 percent--the highest level in the nation's history.

Every region of the country registered increases in belt use since 2002, according to a new survey by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA). The nationwide survey was conducted after the massive "Click It or Ticket" mobilization in May, the largest-ever nationwide law enforcement effort to increase safety belt use.

The May enforcement mobilization was, for the first time, supplemented by an almost \$25 million state and national media campaign. More than 12,000 law enforcement agencies in all 50 states, the District of Columbia and Puerto Rico conducted safety belt checkpoints and other special law enforcement activities as part of the campaign.

According to NHTSA estimates, the increase in belt use this year will translate into more than 1,000 lives saved each year the gains are sustained. In addition, the costs to society are reduced by at least \$3.2 billion.

Restraint use estimates are based on the National Occupant Protection Use Survey (NOPUS), conducted annually by NHTSA. The previous survey in June 2002 found nationwide belt use at 75 percent. The scientific survey is based on observations at 2,000 sites nationwide.

Additional key findings of the latest NOPUS survey include the following:

- ◆ States with primary safety belt laws averaged 83 percent belt usage while states with secondary laws averaged 75 percent. Twenty states, the District of Columbia and Puerto Rico have primary belt laws.
- ◆ Pickup truck occupants registered the lowest usage rate--69 percent--among passenger vehicles.
- ◆ Occupants of sport utility vehicles (SUVs) and vans registered the highest use rate--83 percent.
- ◆ Usage is lowest in the Northeast (74 percent) followed by the Midwest at 75 percent. Belt use is highest in the West (84 percent) and South (80 percent).

NHTSA has been gathering NOPUS statistics on restraint use since 1994. The latest numbers were derived from a survey conducted during a 20-day period in June 2003.

The margin of error for the survey on the national estimates of restraint use is plus or minus 1.2 percentage points.

What about Kentucky safety belt usage?

In cooperation with the Kentucky State Police, the Center's Traffic and Safety Program conducted a study to establish 2003 safety belt and child safety seat usage rates in Kentucky. Data were collected at 200 randomly selected sites spread across the state. The information was then combined into a statewide percentage considering roadway functional classification, geographic region, and vehicle miles traveled.



The resulting report, "2003 Safety Belt Usage Survey in Kentucky," by transportation engineers Kenneth R. Agent and Eric R. Green, reveals that Kentucky's usage rate in 2003 is 65.5 percent compared to 62.0 percent in 2002. Also, the 2003 usage rate for children under the age of four is 94.8 percent compared to 92.9 percent in 2002.

According to the report, which can be viewed on the Center's Web site at www.ktc.uky.edu/ (click on "Research Reports" then scroll down to the Traffic & Safety Section and click on the report.), the high usage rate for children can be related to primary enforcement. The statewide law, except for children, involves secondary enforcement. "To obtain the maximum possible increase in usage," according to Agent and Green, "the current law should be modified to allow primary, rather than secondary, enforcement for all vehicle occupants... As a minimum, primary enforcement should apply to drivers while they are in the permit and intermediate phase of the graduated license program."

Web site makes highway specs instantly available

Thousands of highway construction specifications from all 50 states, the District of Columbia and Puerto Rico are now instantly available online at www.specs.fhwa.dot.gov/.

The Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) created this site as a clearinghouse and electronic library for users to search, review, cross-reference, and download current specifications and other specification-related documents.

Recycled glass useful in many highway projects

Helps glass recycling make a comeback

by: Matthew Hackathorn, Public Information Officer, Ky. Div. of Waste Mgmt., Dept for Environmental Protection

Pulverized glass aggregate, or PGA, is a clever alternative for effectively recycling glass. Since glass is an inert material derived from sand, cities and counties can incorporate PGA as fill in any number of projects, such as road construction, culvert emplacement and septic applications.

The glass recovery market has deteriorated in the last five years, due mainly to manufacturers' steady migration to packaging made from plastic and aluminum, coupled with the high cost associated with recycling glass.

The national plummet of the glass market forced several Kentucky communities to stop offering recycling services to citizens. Most community recycling operations struggle to break even, so handling a virtually worthless (not to mention heavy and bulky) commodity naturally creates a drain on resources.

This unfortunate economic trend has resulted in the majority of container glass generated in Kentucky going to landfills. In many instances, glass being returned to recycling operations piles up because it's cheaper for the manufacturing industry to use raw materials.

Tom Heil, a veteran recycling specialist who runs the Kentucky Recycling and Marketing Assistance (KRMA) program for the Department for Environmental Protection, worked with staff from the Department of Highways in the Transportation Cabinet to obtain approval for PGA use in city and county road projects. Last April the Transportation Cabinet approved experimental field-testing of PGA in local roadbeds, culvert bases and other engineering plans.

Three Kentucky counties, Henderson, Rowan and Union, have completed PGA-related projects, and other counties have started to seek funding support for pulverizing equipment, which runs somewhere in the neighborhood of \$10,000.

"Until recently, the KRMA staff was advising Kentucky recyclers to avoid glass altogether because it just couldn't

compete with plastic and aluminum as a recyclable commodity," said Heil. "Now, any local community has a cheap and very beneficial alternative for effectively reusing every single bit of glass they can take in, provided the recycling program can convince local government to help cover the start-up expense."

Some benefits of using PGA for engineering applications include savings on transportation, gravel and landfill costs, as well as the satisfaction of demon-

Since glass is an inert material derived from sand, cities and counties can incorporate PGA as fill in any number of projects, such as road construction, culvert emplacement and septic applications.



Container glass can be pulverized into different grades of aggregate. The glass on the left has rounded edges and poses no danger to construction workers. The glass on the right was processed with a much less expensive pulverizing machine, resulting in small, sharp shards. Either grade is suitable as fill in road construction and culvert projects.

strating government leadership to promote resource conservation. Perhaps the best feature for recyclers is the eliminated need to separate the glass by its color, a staple criticism of traditional glass recycling.

"This opportunity was a 'no-brainer' decision for us," said Pauline Allen, solid waste coordinator for Henderson, Union and Webster counties. "Our Tri-County Recycling Corporation was able to beneficially reuse 12 tons of container glass for a road-widening project in Henderson and a culvert emplacement in Union. We estimate that the two counties avoided over \$1,200 in expenses, while diverting a lot of material that would have ended up in the local landfill."

Rowan County took a different approach with its first PGA project. The Morehead-Rowan County-MSU Community Recycling Center, an equal partnership involving the city of Morehead, Rowan County and Morehead State University, used PGA to create a concrete pad for a recycling station on Morehead's campus. A university maintenance crew mixed the glass aggregate one-to-one with wet concrete. The resulting concrete pad included over 800 pounds of pulverized glass.

Continued on page 11



A Henderson County Road Department employee uses a hand compactor to level a four-inch-thick layer of PGA in a five-foot-wide trench as part of a road-widening project in June. Henderson was the first county in Kentucky to use pulverized glass aggregate as fill in a road project.

Bridge over troubled waters
Continued from front page

What we did last year for Kentucky's transportation agencies

As a sample of what we can do for Kentucky's transportation agencies and as a measure of our accountability to our partners and those who use our services, listed below are some of our accomplishments during the past fiscal year.

- ⇒ Presented 157 training events across the state attended by 4,611 transportation workers.
- ⇒ Presented the Roads Scholar training track which resulted in 133 new Roads Scholars for a total of 820.
- ⇒ Presented the Road Masters training track which resulted in 108 new Road Masters, for a total of 485.
- ⇒ Conducted the Asphalt Certification Program, leading to the certification of 33 new technologists and the recertification of 63 technologists.
- ⇒ Issued quarterly newsletters: (1) *The Link* and (2) began editing the American Public Works Association (APWA) Kentucky Chapter's newsletter.
- ⇒ Maintains on the Web site an index to *The Link* that is updated with each issue to make it easier for readers to locate a particular subject or article.
- ⇒ Added 746 items to the Library holdings, and loaned 1,114 library materials, including 383 videos.
- ⇒ At the request of the National Transportation Library of the U.S. Department of Transportation, Librarian Laura Whayne evaluated its virtual reference service, suggested some performance measure recommendations to improve its service.

In addition, T² assisted the Kentucky Division of Water in the delivery of two workshops on the Environmental Protection Agency (EPA) Phase II Storm Water rules and how transportation agencies can comply with this legislation. T² assisted in the delivery of the American Association of State Highway and Transportation Officials' (AASHTO) Spring Meeting, the Governor's Highway Safety Summit, the Kentucky Transportation Cabinet's "Design of Interchanges" workshop, and hosted the teleconference "Integrating Right-of-Way and the Environment for Better Results." T² presented the second Kentucky Aviation Maintenance and Operations Seminar in cooperation with the Kentucky Transportation Cabinet and the Federal Aviation Administration

T² continues to present the IMSA (International Municipal Signal Association) Level I and Level II Traffic Signal Certification training. This fiscal year, the Level II training was presented to 31 participants.

What you can expect in FY 2003-2004

- ⇒ More Pesticide classes are scheduled for 2004 to assist licensed applicators renew their certifications.
- ⇒ T² will assist in presenting the Center's "Highway Crash Site Management" workshops

- ⇒ T² will add a "shopping cart" to its Web site so viewers can sign up for more than one workshop at a time and pay by credit card.
- ⇒ This fall, T² staff will host regional awards luncheons to honor the 2003 Roads Scholars & Road Masters.
- ⇒ A 2004 Calendar of training events will be produced and distributed to those who send their employees to our training.

Now, may we help you?

The Roads Scholar and Road Master training continue to be our most popular training programs and are regularly scheduled during the year at different locations across the Commonwealth. We also can present most of our workshops as "On-Demand" training at your location to help save your agency travel and lodging expenses, and we can customize most training to your employees. Check out our Web site: www.kyt2.com (click "On-Demand" button on left of page).

Call the library staff to help you find answers to your transportation questions, solutions for your transportation problems, or to help you with materials for in-house training. Also, a new video catalog has recently been published (see page 10). Learn more about our program by visiting our web site or call us with your questions and requests at 1-800-432-0719 or 859-257-4513 or fax 859-257-1061.

How roundabouts make highways safer
Continued from page 2

particularly successful where the traffic flows are in balance on all approach legs. Moreover, roundabouts are a less effective form of intersection when the number of entry legs exceeds four, mainly due to the size of the junction and the higher circulating speeds that can be achieved.

Roundabouts provide the designer with the flexibility to adjust the design to conditions at individual sites. An example of this flexibility is the use of roundabouts at interchanges. This approach eliminates the need for traffic signals or other traffic controls at the interchange, creates a safer environment for left-turning traffic, and improves capacity by preventing delays.

The size of the roundabout also is important. Roundabouts are a flexible design element and could be modified to fit most right-of-way conditions. It is recommended that the first installation of a roundabout in an area should be a single-lane roundabout to familiarize drivers with its operation and demonstrate the benefits of this traffic control. Such designs can generate a positive image for roundabouts and can then become a frequent traffic control alternative.

For additional information, please refer to *Roundabouts: An Informational Guide* (call the Library to borrow a copy) or www.tfhrcc.gov/safety/00068.htm.

TRAINING CALENDAR

2003

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

October

9	#Communications II	Kentucky Dam Village State Park, Gilbertsville**
12-14	Southeastern Local Roads Conference	Asheville, NC
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
27	Pesticide Continued Training III	Drury Inn, Bowling Green**
28	#Roadside/Vegetation Management	Drury Inn, Bowling Green**
29-30	IMSA, Level I	Ramada Inn & Conference Center, Lexington
29	Pesticide Continued Training III	Drury Inn, Bowling Green***
29	IMSA, Level I	Ramada Inn & Conference Center, Lexington
30	#Snow and Ice Removal	Receptions Banquet & Conference Center, Erlanger
30-Nov.1	APWA Ky. Chapt. Leadership Workshop	Shaker Village of Pleasant Hill

November

4	RS/RM Awards luncheon	Marriotts Griffen Gate, Lexington
5	Pesticide Continued Training III	Ramada Inn & Conference Center, Lexington
6	Pesticide Continued Training III	Ramada Inn & Conference Center, Lexington
6	Highway Crash Site Management	Big Sandy ADD
10	Pesticide Continued Training III	Center for Rural Development, Somerset
12	RS/RM Awards luncheon	Barren River Lake State Resort Park**
17	Pesticide Continued Training III	Lake Barkley State Resort Park**
18	Pesticide Continued Training III	Lake Barkley State Resort Park**
19	Pesticide Continued Training III	Kentucky Dam Village State Resort Park**
20	Pesticide Continued Training III	Kentucky Dam Village State Resort Park**

December

1	Pesticide Continued Training III	Pennyrile Forest State Resort Park**
2	Pesticide Continued Training III	Pennyrile Forest State Resort Park**
3	Pesticide Continued Training III	Rough River Dam State Resort Park**
4	Pesticide Continued Training III	Rough River Dam State Resort Park**
4	Highway Crash Site Management Workshop	Cumberland Valley ADD
5	Pesticide Continued Training III	Rough River Dam State Resort Park**

Pesticide Training in January 2004 (Roads Scholars/Road Masters training is currently being scheduled)

January 2004

6	Pesticide Continued Training III	Jenny Wiley State Resort Park
7	Pesticide Continued Training III	Jenny Wiley State Resort Park
8	Pesticide Continued Training III	Jenny Wiley State Resort Park
13	Pesticide Continued Training III	Receptions Banquet & Conference Center, Erlanger
14	Pesticide Continued Training III	Receptions Banquet & Conference Center, Erlanger
20	Pesticide Continued Training III	Natural Bridge State Resort Park
21	Pesticide Continued Training III	Natural Bridge State Resort Park
22	Pesticide Continued Training III	Blue Licks Battlefield State Resort Park

- 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

KyTC TRIMARC Web site one of nations's top four

The U.S. Department of Transportation's Federal Highway Administration (FHWA) has announced the third annual winners of its national awards for traveler information Web sites that give travelers easy access to current information about safety and mobility on the highways.

CONGRATULATIONS to the Kentucky Transportation Cabinet for being one of those award winners for its TRIMARC Web site: www.trimarc.org.

TRIMARC (Traffic Response and Incident Management Assisting the River Cities) provides travelers with information for the interstate highway system within the greater Louisville/Southern Indiana urbanized area.

**You will never "find" time for anything.
If you want time, you must make it.
---Charles Buxton**

APWA Region III Leadership Conference

Meet the real APWA shakers and movers at the Region III Leadership Conference on **October 31 thru November 1** at Shaker Village of Pleasant Hill.

Peter King, Executive Director of the national APWA, is the featured speaker and will discuss "APWA Leadership Development Tools." There will be many topics of interest during the two days of learning and information sharing. To register, call the Center at 800-432-0719 or 859-257-4513 x269.

Mark your calendars!

The APWA North American Snow Conference, the premier event for snow and ice management, will be held in Lexington on **April 25-28, 2004**. The Bluegrass Branch of the APWA Kentucky Chapter is the host and is already planning your welcome to Lexington. More info later!

Wonders of the Web ...

*Great sites where you can
obtain useful information*

1. How **bikeable** is your community? Figure it out with the bikeability checklist at www.nhtsa.dot.gov/people/injury/pedbimot/bike/Bikeability/index.htm
2. U.S. Geological survey Web site provides links to such subjects as **geology, mapping and water**: www.usgs.gov
3. **ITS Benefits and Costs database** can be seen at www.benefitcost.its.dot.gov
4. Did you know that a pedestrian is killed or injured every 7 minutes? Find out more about FHWA's **pedestrian safety** campaign at: <http://safety.fhwa.dot.gov/fourthlevel/intersafagenda.htm>
5. **SICOP** (Snow and Ice Pooled Fund Cooperative Program, developed by AASHTO) offers some useful snow and ice links including Iowa DOT's Anti-Icing Equipment-Recommendations and Modifications. SICOP's Web site: www.sicop.net
6. **TranStats** is a new Web site for transportation researchers and analysts aimed at providing "one-stop shopping" for transportation data: www.transtats.bts.gov
7. **Protecting wildlife and fish** during transportation projects: www.fhwa.dot.gov/environment/wildlifeprotection/
8. Addresses the problem of **deer-vehicle collisions**: www.DeerCrash.com
9. **SAFETEA** (Safe, Accountable, Flexible and Efficient Transportation Act): <http://ops.fhwa.dot.gov/safetea.htm> or www.fhwa.dot.gov/reauthorization/index.htm
10. Two web sites dealing with **transportation security**: www.ops.fhwa.dot.gov/OpsSecurity/ and www.ite.org/security/
11. Access the publication "**Avoiding Utility Relocations**" and other publications to help plan and work around utility lines during highway construction projects on the Subsurface Utility Engineering (SUE) Web site: www.fhwa.dot.gov/programadmin/sueindex.htm



SELRC to be held Oct. 12-14 in Asheville

Hosted this year by the North Carolina Local Technical Assistance Program, the Southeastern Local Roads Conference (SELRC) provides the opportunity to share success stories and innovative advances in transportation planning, traffic safety operations, roadway design, maintenance and construction. Targeted for county, city, and public works personnel, the conference should also be attractive to federal and state highway personnel, contractors, vendors, consultants, and all those whose work impacts the movement of persons and goods on local roads.

The conference is a collaboration of the Federal Highway Administration and the southeastern LTAP Centers, which include AL, FL, GA, KY, MS, NC, PR, SC and TN.

Call the Center for a brochure or visit this Web site:
<http://itre.ncsu.edu/LTAP/SELRC.html>

Ky. Transportation Hall of Fame nominations sought

The Center is requesting nominations for the Kentucky Transportation Hall of Fame Award. Past recipients include Henry Ward, Buckner Hinkle Sr., Cyrus S. Layson, Dwight H. Bray, C. M. "Hank" Hancock, Otto Ingram, Calvin G. Grayson, Harold C. Watts, E. B. "Bas" Gaither, Paul A. Faulkner, Leonard Lawson, Arthur Walker Sr., Richard D. Crist, Marvin "Pete" Worthington, Joseph E. Kearnes and David K. Blythe. When nominating someone for this award, please keep in mind the following criteria:

"Kentucky Transportation Hall of Fame inductees shall be persons who by their foresight, dedication, leadership, perseverance, and integrity have significantly enhanced transportation systems in the Commonwealth. They shall be or shall have been residents of the Commonwealth."

An individual nominated in the past, but not selected, will be reconsidered during the selection process. Please be as specific and detailed as possible in your comments. You may attach supporting documents, resume, etc. Please mail your nominations to:

Hall of Fame Selection Committee
 C/O Kentucky Transportation Center
 University of Kentucky
 176 Oliver Raymond Building
 Lexington, KY 40506-0281

Have questions? Call Carla Crossfield at 800-432-0719.

NOMINATION DEADLINE: NOVEMBER 30, 2003

The award will be presented at Kentuckians for Better Transportation Conference luncheon on Jan. 30, 2004.

Fall 2003

Roundabouts--A tool for building safer highways *Continued from front page*

circle. With a new, standardized design, roundabouts allow traffic to move more smoothly and much safer than a signal or stop sign control. In fact, delays are often reduced by 20 percent and crashes are reduced overall by 40 percent.

Driving safely in a roundabout

When driving a roundabout, there are some basic rules that you need to remember. First, you need to reduce your speed as you approach since roundabouts are only designed to be driven through at 15 to 25 mph. Keep to the right of the splitter island and yield to oncoming traffic at the yield line; all traffic will be traveling in a counter-clockwise direction from your left.

Watch for pedestrians at crosswalks and bicyclists on the road. Be careful to not overtake large trucks and buses because they may have to swing wide at the approach or use the entire roadway to make the turn. Use your turn signals to indicate your direction and stay in your lane. Finally, if an emergency vehicle approaches while you are in the roundabout, continue through your exit and pull over past the splitter island.

Roundabouts are a tool that many American designers are using to make roadways safer and traffic flow smoother. If you follow these rules to properly negotiate your way through a roundabout, you'll soon find your travels easier, safer and much more efficient than waiting at a stop sign or traffic signal.

Publication Statement

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Paul Toussaint, Director
Kentucky Transportation Center

Patsy Anderson, Manager
Kentucky Technology Transfer Program

Nancy Robinson, Newsletter/Publications Editor



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New materials to borrow

Videos and CD-Roms

1. AV-V912 **Driving Modern Roundabouts: Rules of the Road.** (10 min.) Washington State Dept. of Transportation. 2002. Learn how to safely maneuver and drive through roundabouts.
2. AV-V909 **Basic Principles for Proper Installation of Corrugated Steel Drainage Structures.** (19 min.) Covers excavation, preparation, handling, assembly and backfilling for corrugated steel drainage structures.
3. AV-V924 **Chain Saw Use and Safety.** (18 min.) Demonstrates the proper and safe way to use chain saws while climbing, working from an aerial lift, performing take-downs, limbing, bucking and more.
4. AV-V915 **Dump Truck Safety.** (14 min.) Covers maintenance and safe operation of dump trucks.
5. AV-V925 **On Again, Off Again: A Guide to Mounting and Dismounting Equipment.** (18 min.) Covers the steps for safely mounting and dismounting equipment. Covers falling, basic first-aid and potential hazards.
6. AV-V919 **Safe Driving Tactics.** (26 min.) Vehicle condition, road conditions, weather and driver behavior impact safety. Safe driving techniques are covered.

Publications

7. HE5614.2.P472000
Crash Reductions Following Installation of Roundabouts in the United States. Insurance Institute for Highway Safety. 2000.

Library staff organizing KyTC Scholarship Program files

The Library staff, Ginny Norris and Laura Whayne, are reviewing and organizing the Scholarship Program files from 1991 to the present for the Kentucky Transportation Cabinet. Information will be entered into a data base so statistics can be generated. An updated history and summary of the Scholarship Program will be included.

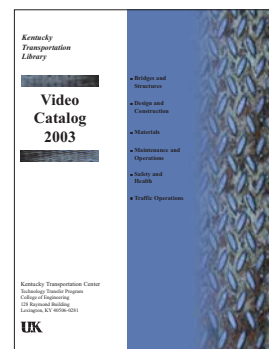
8. TE7.S9 no. 264
Modern Roundabout Practice in the United States. Transportation Research Board. 1998.
9. FHWA-RD-00-067, FHWA-RD-00-068
Roundabouts: An Informational Guide. Federal Highway Administration. 2000.
10. KRR-KTC-03-15 **Development of Procedures for Identifying High-Crash Locations and Prioritizing Safety Improvements.** 2003.
11. TE7.H5 no. 1819 **Eighth International Conference on Low-Volume Roads.** 2003.
12. FHWA-VTRC-03-TAR6 **Evaluation of Deer Warning Reflectors in Virginia.** 2003.
13. CLRP-95-4 **Hot and Cold Mix Paving: Principles and Practices.** 1995.
14. FHWA-NC-2002-023 **Measures to Reduce Erosion and Turbidity in Construction Site Runoff.** 2002.
15. FHWA-SA-96-045 **Road Savers Case Studies: New Strategies for Improving the Nation's Highways by Implementing SHRP Research.** 1996.
16. FHWA-AK-RD-02-02 **Socioeconomic and Environmental Impacts of Paving Gravel Roads.** 2003.

Watch ... and Learn!

The Center's **Video Catalog** has been updated and is available on our Web site <www.kyt2.com>. Click on "Library" in the left-hand column and then select "Video Catalog." This Catalog lists the videos in order by library call number. At the end is a subject index for the videos. Also included is a request form for borrowing the videos. You may borrow up to three videos for two weeks at a time. Videos may be renewed if they have not been requested by anyone else. Your only expense is the return postage. What a deal!

If you prefer a print copy, we will mail you the 2002 Video Catalog with an Update Catalog that lists the new videos added since the 2002 Catalog was published. Contact the Library for your complimentary copy.

We strive to provide videos that help you with your job. If we don't have a video on the subject you need, we will search for one to add to our collection. Just let us know your needs.



Sharing KTC research findings

Highway Crash Site Management

(KTC-03-18) by Monica Barrett July 2003

Traveler delay is the problem most often associated with highway crashes, but by far the most serious problem is the resulting secondary crashes that occur. Another related issue is the danger posed to response personnel serving the public at the scene of a crash. The longer a crash is in place, the longer the responders are vulnerable and exposed to injury.

The Center, in cooperation with the Kentucky Transportation Cabinet, developed a checklist and interagency workshop to address ways to secure and coordinate the resources necessary to restore the roadway's operation in a safe and timely manner. The Highway Crash Site Management workshop and Checklist have been a very effective way to get the message of quick clearance to emergency responders.

It is the finding of this study that emergency responders are receptive to this program and that conducting more workshops and distributing more Checklists would improve crash site management throughout the state. Minor modifications should be made to the workshop in an effort to make the program more sustainable, and the management and organization should gradually be turned over to the Technology Transfer section of the Center. (See page 3 for information on the scheduled workshops.)

IMSA training scheduled for October

A Traffic Signal Level I workshop is scheduled for **October 29-30** at the Ramada Inn in Lexington. It is the entry course for traffic signal technicians and is based on the concept for relating fundamentals of traffic signal design, traffic signal installation, maintenance and limited troubleshooting. It discusses the basic procedures of how and why to install signalized intersections. Participants must have completed IMSA's Work Zone Traffic Control or an approved equivalent, such as the Center's Work Zone Traffic Control workshop.



The Center also presents Traffic Signal Level II training which provides an expanded discussion of traffic signal operations. To check for future Level II workshops, check T²'s Web site, <www.ky2.com>, click on the "Training and Testing" button on the left and select "IMSA Level II."

You can register online or by phone for the Level I workshop scheduled for October 29-30.

Long-Term Benefits of Stabilizing Soil Subgrades

(KTC-02-10) by Tommy C. Hopkins, Tony L. Beckham, Liecheng Sun, Bixian Ni, and Barry Butcher

Stabilizing highway subgrade soils with chemicals such as hydrated lime, Portland cement, and industrial by-products containing cementing agents not only improves the engineering properties of the subgrade but also prolongs pavement life. It can reduce initial construction costs by \$10,000 to \$30,000 per road mile because by improving the subgrade, the pavement thickness can be reduced.

Field testing conducted by the Center has shown that chemically stabilized subgrades retain the improved engineering properties after 15 years of service and is long lasting. Improved bearing capacity of soil subgrades stabilized with Portland cement was still intact after 30 years. This study, sponsored by the Kentucky Transportation Cabinet and the Federal Highway Administration, shows that subgrade stabilization prolongs pavement life and reduces maintenance costs.



Glass recycling Continued from page 5

"We're very interested in finding ways to incorporate recycled glass into various county projects," said Rowan County Deputy Judge-Executive Tim Gibbs. "We currently have several tons of PGA at the county garage that we plan to use in upcoming road projects."

The Federal Environmental Protection Agency estimates that Kentuckians generate about 100,000 tons of container glass each year. Increased collection and reuse of this material will greatly add to waste reduction results in the Commonwealth.

For engineering data and information regarding other states' use of PGA, contact Tom Heil at (502) 564-6716 or send him an e-mail at Thomas.Heil@mail.state.ky.us.

Roads Scholars/Road Masters luncheons scheduled

by Martha Horseman
Training Manager

The Kentucky Transportation Center Technology Transfer Program, is proud to announce that over 60 participants have completed the Roads Scholar and/or Road Master Training Series. Over 80 more persons are scheduled to complete the training programs in time to receive their designations this year. We appreciate these dedicated local and state government employees for their outstanding effort and commitment to quality roads in Kentucky. The new recipients will join the 820 Roads Scholars and 485 Road Masters who have already completed these programs.

T² will be hosting this year's award luncheons on **November 4, at the Marriott's Griffen Gate Resort in Lexington** and on **November 12, at the Barren River State Resort Park in Glasgow** to present the 2003 certificates.

The luncheons will begin with registration at 11:30 a.m. and lunch at 12 noon. Kentucky Transportation Secretary James C. Codell III will present the certificates at 1:00 p.m. Also invited to attend are senators, representatives, county judges, mayors, magistrates, commissioners, and chief district engineers, as well as road department supervisors and staffs.

You'll be seeing this new workshop coordinator all around the state



Heather Pohlman is the newest staff member at T² and will be taking on the responsibilities of workshop coordinator. We thought we could spread out the responsibilities when Melissa Adkins left, but found out that we need another staff person, so Heather has graciously consented to fill the position.

She graduated from Eastern Kentucky University in May, 2002. She lives in Richmond with her roommate, Autumn, and their two cats, Jasmine and Leo. She enjoys traveling and spends most of her free time "getting to as many places as possible." Wow, can we put her to work traveling across the state to our workshops!! Be watching for her...and give her a break, at least for awhile--remember she's new at the job! Heather says she is looking forward to her new position as workshop coordinator.

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Kentucky Transportation Center
College of Engineering
176 Raymond Building
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