Roundabouts in Kansas: Are they really safer?

by Courtney Hansen

The first modern roundabouts opened in the United States in 1991 and 1992. Since then, the roundabout has been gaining popularity with traffic engineers as a safer, more efficient, and more attractive way to control traffic at intersections.

Roundabouts can improve safety because they physically change the way that traffic must move through the intersection. Because all vehicles travel in the same direction, head-on collisions are virtually impossible, and "t-bone" perpendicular collisions are also limited. Any collisions that do occur usually involve accidents at less severe angles or accidents involving the structural elements of the roundabout itself, both of which are much less dangerous types of collisions.

According to Bob House, KDOT research analyst, roundabouts have been shown to reduce fatal and injury accidents by as much as 75 percent.

"Most states in the U.S. have taken a strong interest [in roundabouts] for several reasons, including low maintenance, reduced traffic delay, environmental and aesthetic benefits—not to mention safety aspects," House said.

Kansas is one of these states; several roundabouts have opened in the state since 1996. Are they improving safety? Let's take a look at the numbers. The following are accident statistics from a few of these projects, from both before and after the opening of the roundabouts.

A roundabout opened to traffic in 1996 at the intersection of Candlewood and Gary in Manhattan. Prior to this, the intersection had three accidents where a vehicle collided with another vehicle in both 1994 and 1995. The year after the roundabout opened, there was only one accident at this intersection, and the two following years were accident-free.

The intersection at Monterey Way and Harvard Road in Lawrence had three accidents where a vehicle collided with another vehicle in both 1994 and 1995. The year after the roundabout opened, there was only one accident at this intersection, and the two following years were accident-free.

The intersection at Monterey Way and Harvard Road in Lawrence had three accidents where a vehicle collided with another motor vehicle in the two years prior to the opening of a roundabout in 1999, and was accident free in 2000 and 2002. However, in 2001, there were four accidents at the intersection; these accidents, though, can be attributed to excessive speed and driver inattention.
Roundabout safety in Kansas,  
continued from page 1

tention, not to the roundabout geometry. It’s worth noting that these driver behaviors at an intersection controlled with stop signs may have caused much more serious collisions.

Another roundabout opened in 1999 is at the intersection of Grand Mere and Kimball in Manhattan. While the intersection was accident-free in the three years before the opening of the roundabout, it saw one accident in 2001 and two in 2002. On further examination, however, two of these accidents were a result of driving under intoxication, and the other happened because the driver fell asleep (!) All three accidents involved collision with a fixed object, not another vehicle.

In 2000, a roundabout at the intersection of 23rd and Severance in Hutchinson opened to traffic. In the two years before this, the intersection saw 23 accidents, including six injury accidents. In the two years after the roundabout’s opening, the number of accidents dropped to 12, with one injury accident. In this case, the roundabout clearly improved the safety of the intersection.

The numbers in this article provide a snapshot of roundabout performance in Kansas. While most roundabouts in the state are not producing a spectacular reduction in accidents, many are making some difference in terms of numbers of accidents or severity. The statistics also appear to dispel fears that drivers will have accidents because they do not know how to use a roundabout.

For more information on roundabouts, see K-State's roundabout web site at: www.ksu.edu/roundabouts. Also, KDOT offers an 150-plus page Kansas Roundabout Guide free on CD; for a copy call David Church, PE, KDOT Chief of Traffic Engineering at 785/296-3618.

Rounding up facts on roundabouts

. . . by Courtney Hansen . . . .

Roundabout vs. traffic circle. A modern roundabout consists of a center island with a diameter of 45 to 200 feet, around which traffic flows at speeds of 15 to 25 mph. Modern roundabouts are smaller, slower, and safer than the typical big-city traffic circle. Many people opposed to roundabouts assume that they are much like (in)famously dangerous large traffic circles such as the Dupont Circle in Washington, D.C. or the traffic circle around the Arc de Triomphe in Paris. However, modern roundabouts incorporate a number of improvements over these circles that make them safer and easier to drive. Modern roundabouts have smaller diameters which force drivers to slow to avoid skidding around the curve; they operate at much lower speeds than traffic circles. The major difference between traffic circles and modern roundabouts is the fact that traffic approaching a roundabout must yield to traffic already in it, while traffic circles usually require cars in the circle to yield to incoming traffic. So while traffic circles can have dangerous stop-and-go traffic inside the circle, roundabouts do not.

Traffic flow. Roundabouts can be more effective in moving traffic safely than traffic signals or stop signs. It is much harder to “run” a roundabout, and roundabouts force drivers to reduce speed in order to navigate the curve. In addition, roundabouts cannot malfunction or break, and drivers must only look in one direction to check for oncoming traffic. Roundabouts tend to have less traffic backup than four-way stop signs, because vehicles only stop when it is necessary. For this reason, traffic flows with much less waiting for right-of-way, allowing traffic to move at the most effective pace.

Aesthetic benefits. Visually, the center island defines a roundabout. This raised island gives drivers a cue that the intersection is controlled by a roundabout and not by a traffic signal or stop sign. The island also serves as a decorative addition, and can be home to a variety of plants or a fountain. Because of this, roundabouts can be much more attractive than traditional intersections, particularly in urban areas with little vegetation.

Pedestrian and bicyclist safety. At busy intersections, pedestrians sometimes have barely enough time to dash across the road before waiting cars speed across the crosswalk. The slower speeds of a roundabout allow cars more time to react to pedestrians, and visa-versa. Roundabout approaches are a few lanes wide at the most, and many have dividing islands that can serve as safe areas for pedestrians to wait to cross. The slower speeds of a roundabout also allow bicyclists to easily navigate these intersections; they can move at approximately the same speed as the rest of traffic and are more visible because they are coming from the same direction as oncoming traffic.

Online MUTCD helps in keeping track of changes

... by Mark Borst, P. E., traffic engineer, Sedgwick County, Kansas . . . . . . . . . .

We used to go years without changes to the MUTCD. Then we were told about what eventually became the Millennium Edition. This edition seemed to take a decade or more to become available. Then, before we knew it, FHWA published Revision 1. Then, almost overnight compared to what we had been used to, we have the 2003 Edition. With budget cuts, it has been hard to keep up-to-date hard-copy versions in the hands of all that need it. So, the online version of the MUTCD is a welcome tool—especially because it is always the most up-to-date version. Federally-approved updates are made promptly to the online version, before hard-copy or CD versions are available. The online version is available as a free download to anyone with internet access.

The MUTCD web site (http://mutcd.fhwa.dot.gov/) has a number of useful features, and I use six of them at least occasionally. These are: 1) the PDF version of the manual—both the Millennium and 2003 editions, 2) the Change List (changes between Millennium and 2003 versions), 3) Updates, 4) Interim Approvals, 5) the Standard Highway Signs Manual (SHS) 2002 edition, and 6) the Discussion Area.

I especially like having quick access to updates to the hard copy version(s) we have in the office, and the interim approvals. I don’t have to search the Federal Register to find the updates, and I can see what other agencies are experimenting with.

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The Standard Highway Signs Manual is also a nice reference. I can show a township official or citizen a picture of a sign they might not be familiar with. I can also give direction to my traffic operations and maintenance crew for the production of appropriate devices by referencing the SHS. The 2003 version should be available later this year.

The Discussion Area is a place to check to see what other professionals around the country are talking about concerning the MUTCD. I have never submitted any questions or topics for discussion, but I find it interesting to see if others have similar questions or problems to what I sometimes encounter.

Although navigating the online documents can take some time, I find that having multiple documents and tools available online help keep my desk a little cleaner. I will always still keep a hard copy of the MUTCD and SHS around, but having the ability to reference changes online keeps me up to date without searching additional sites or publications.

Winter 2004
Not-so-gentle persuasion to get contractors and utilities to set up work zones correctly

Work zones are dangerous for road workers and travelers who drive through them. Your road department, of course, knows the requirements for setting up work zones, inside and out, and follows them to the letter. But your crews are not the only ones setting up work zones in your jurisdiction. Contractors and utility companies also do this work—and should be doing it correctly.

What if they aren't? If contractors and utilities work on your roads and are creating dangerous situations, the public is likely to think your agency is responsible, even when it's not.

Many communities have a clause in their contracts that say the contractor is responsible for setting up and managing a work zone according to the requirements of the *Manual of Uniform Traffic Control Devices* (MUTCD). This takes care of liability concerns but not negative public perception, or the actual safety hazards.

Some communities in Kansas are putting teeth into requiring proper work zone set-up. Here is an example.

Lenexa has a city ordinance that imposes a fine for setting up a work zone incorrectly. (Fines are assigned by a judge.) The ordinance also allows the city to shut down the work zone until its set-up complies with MUTCD. A portion of the ordinance is shown above. The ordinance also specifies that copies of the 2003 MUTCD will be available to the public, filed with the Lenexa City Clerk.

Steve Schooley, traffic engineer for Lenexa, said improperly set up work zones had “been a real problem” in his city. Since the ordinance was adopted two years ago, the situation is improving. “Word is slowly starting to get out,” Schooley said. “People are doing a better job out there.”

The ordinance has a side benefit—it also helps city staff stay sharp on requirements for proper work zone set-up. Schooley says Lenexa’s crew members are often the first to spot problems out in the field. “Our crews are out driving the roads all day, and provide another set of eyes,” he said. Schooley said Lenexa road crews really know the rules, and that translates to better quality in the city’s work zones as well.

Proper work zone set-up is a priority for Lenexa’s road maintenance staff. “We make a pretty big issue of this at staff meetings,” Schooley said. “It’s hard to tell a contractor to do it right if they look down the street and see us doing it wrong.”

Schooley said Lenexa based their approach on a city adjacent to them—Overland Park. A utility company once commented that requirements for work zone set-up were stricter over there, just across the road in places. Well, Lenexa is fixing that!

In Overland Park, anyone doing work on city roads must comply with their city’s right-of-way ordinance, passed in 2000. As with Lenexa, the ordinance references the MUTCD. For construction on busy roads, plans for work zone set-up must be submitted to the city and approved.

Murvyn Morehead, Overland Park’s right-of-way manager, visits work zone sites and will shut them down if not properly set up. Problems are generally spotted by Morehead on his rounds or reported by the city’s road crews or the public. Morehead said the city has seen a “definite improvement” since the city took more aggressive measures to assure proper work zone set-up.

For more information, call Steve Schooley, Lenexa, at (913) 477-7680 or Murv Morehead, Overland Park, at (913) 895-6189.
Work zone accident victims remembered in ceremony and on memorial wall

... by Lisa Harris

Work zone safety training and driver education are designed to help prevent deaths at road construction sites. These tragedies have happened all over the country, and Kansas is no exception.

Four road workers who died on the job in Kansas were remembered in a ceremony in Manhattan, Ks., on August 24, 2003:

Darrell Smith (d. 2001), who was crushed by a screening unit (which mixes asphalt and oil) while working for an asphalt contractor;

John Hatch, Jr. (d. 1981), who was pinned under the roller he was driving in 1981, after it came too close to a culvert and fell over;

Freddie Tilton (d. 1963), who was struck in the chest in by a falling tree limb while clearing trees for a county road crew;

Paul Lippert (d. 1963), a flagger who was side-swiped by a truck that jack-knifed at a work zone.

The remembrance ceremony capped a week-long display of the National Work Zone Memorial at the Manhattan Town Center. The display was brought to Kansas through efforts spearheaded by Chuck Heinz, traffic control engineer for Riley County. Heinz coordinated fund-raising and logistics for the project. Fifteen Kansas consulting firms contributed funds to support this effort.

The memorial wall includes the names of individuals killed at work zones. A small icon next to each name indicates whether the individual was a road worker, motorist, law enforcement officer, public safety official or a child. The memorial is maintained by the American Traffic Safety Services Foundation and their safety partners. Sponsors help fund the program; to learn how to become a sponsor, visit www.atssa.com.

Keynote speakers at the ceremony were Kansas Secretary of Transportation Deb Miller and Attorney General Phill Kline. Kansas Highway Patrol officers were on hand to talk with passersby and distribute work zone safety information.

Rose Lichtenberg from Kansas LTAP attended the ceremony. She said “a good-sized crowd sat and listened to the presentations, many shoppers stopped and stood nearby to participate, and many others walked the length of the wall to read the names.

If you would like to host the memorial in your community, contact monicaworth@mindspring.com.
A few minutes with Riley County’s patching truck and crew

0:00—The pothole patching truck arrives at the site.

0:05—After the pothole is cleaned and tack oil is applied, hot asphalt can be poured from hopper right into the hole. No shoveling needed.

0:07—Dan Mathies levels the hot mix while Dave Ball uses the pothole truck’s compactor to smooth and compact the patch.

0:10—The machine’s hydraulic lift picks up the compactor and the job is done.
Patching truck saves time, money and crew members’ backs

Riley County uses a patching truck that makes filling potholes much easier, and they want other road departments to know about it. So they invited me to see it in action. Here’s what I learned.

... by Lisa Harris .................

Filling potholes can be expensive and back-breaking work. Riley County’s public works department, like many others, has invested in a pothole patching truck to make this job easier and more efficient.

Riley County purchased their truck—a Pro Patch Model TCM 415-60, eight years ago. It is a self-contained work center that includes a hydraulically driven screw conveyor for dispensing asphalt, an air compres sor, a compactor on a hydraulic lift, heated compartments for tack oil and asphalt pre-mix, a blow-torch for pre-heating potholes, a spoils bin and more. The machine’s built-in features allow potholes to be patched with less equipment, less time, and fewer crew members than the “old-fashioned” way, said Rod Meredith, assistant director of public works.

“Before we purchased the patching truck, even if the potholes were small, we’d have to fully gear up,” Meredith said. “We’d send a backhoe on a trailer (or milling machine on a truck or pick-up), plus an oil distributor truck, plus a small roller on a trailer, pulled by another truck. With the patching truck, instead of sending out three trucks and five or six crew members, we send one truck and two or three guys. We have cut equipment and labor to one-third of what it was.”

Of course, a pothole patching truck isn’t cheap—Riley County paid $70,000 for theirs almost a decade ago—but the truck pays for itself in just a few years with savings in labor, worker’s comp claims for strained backs, and other vehicles needed for patching.

Pothole patches last longer, too, when using the specialized truck. That’s because you can have access to heated asphalt at any time, even after the asphalt plants shut down for the winter. Riley County heats up a cold mix right in the truck (Saturrock, from a Kansas City vendor, which has a polymer in it for greater durability). “We put a timer on it and start it heating at 2:00 a.m.” said Meredith.

Meredith chose Pro Patch because all components are available locally. He also made sure that the machine design was straightforward enough that it could be repaired locally or in-house. Riley County consulted the City of Topeka when researching the truck; Topeka had three Pro Patch trucks at the time.

Dan Mathies, who frequently operates Riley County’s Pro Patch truck spoke highly of it. “It saves us a lot of work and heavy lifting, and it makes a pretty good patch, too,” he said.

Riley County’s patching crew is so efficient that it is hard to keep up with them! Before we drove out to see them in action, Meredith called his crew to see where they were. They were on a job just a few miles away, but by the time we got there, they were gone, and all we saw was the neat, new patch. We eventually caught up with them, two patches later.

For more information call Rod Meredith at (785) 539-2981 or H.D. Industries, makers of Pro Patch, at (800) 256-6126. Or visit the Pro Patch web site: www.pro-patch.com

Right resources; right versions?

... by Bobb Stokes, professor of civil engineering, Kansas State University

Two major resources addressing road safety issues on local roads are the Manual on Uniform Traffic Control Devices (MUTCD) and AASHTO’s “Green Book.” They each contain critical information on creating safe roadways, and they are also considered the law in Kansas. The MUTCD is officially adopted by the State and must be used by all road departments. The Green Book is not codified in this way, but lawyers refer to it as if it were law. So... so should you.

It’s important to have up-to-date editions of these books, but for the MUTCD, the “right” version to use is the Millennium edition and not the recently-released 2003 edition. That’s because KDOT has not yet adopted the new version. The 2003 edition will likely be adopted sometime this year, and then it will become the legal version, at least for awhile. The MUTCD is changing so often these days it is prudent to be sure you are using the KDOT-adopted version.

As for the Green Book, the 2001 version is the most current. However, the 2001 version does not include the new chapter on very low volume roads released later that year. This chapter is currently a stand-alone book called Guidelines for the Geometric Design of Very Low Volume Roads (ADT <400). It is, however, considered part of the Green Book and will be incorporated into its next edition.

* AASHTO’s Green Book’s full title is A Policy on Geometric Design of Highways and Streets.
Need assistance with a traffic safety study? Call KDOT.

KDOT’s Traffic Engineering Assistance Program (TEAP) is a resource for local agencies that do not have the capability to perform traffic engineering studies. The types of studies typically requested are:

- traffic accident analysis
- traffic counts
- speed surveys
- minor traffic generation studies
- limited transit analysis
- parking problems
- capacity analysis
- lighting and visibility analysis
- traffic signal progression and delay problems
- alignment problems
- sight distance difficulties
- railroad crossings
- central business district (CBD) circulation studies
- pavement marking analysis
- high accident analysis
- school signing and markings
- signal needs study
- major traffic generation studies
- CBD operation, parking or capacity analysis

Is funding ever available for project construction and engineering? Yes, based on the availability of competitive federal “STP” funds, and the local obligation authority for those funds. Projects using STP funds require a local match.

How do I get started? To find out if your traffic study could be funded under TEAP, call Lee Holmes, traffic safety engineer, at KDOT’s Bureau of Local Projects (785/296-3861).

What next? If your project meets TEAP criteria, you will then need to submit a formal request for KDOT review and approval. Upon approval, KDOT will request an estimate from the applicable consultant, and then KDOT will inform your agency that the study can be scheduled with the consultant.
Safety resources to reach for

... by Lisa Harris 

Road departments in Kansas have a host of challenges in keeping travelways safe. We asked Lee Holmes, traffic safety engineer for the Bureau of Local Projects at the Kansas DOT, to tell us which safety problems seem to crop up most often for local agencies. He named the top five concerns, which appear below.

How should local agencies address these concerns? The first step is to do your homework. We've listed below the basic resources you should consult when considering a safety problem. The resources are broken down by type of problem and by the two major ways a safety problem can be approached—either by changing the geometric design of the problem area or through adding or changing signs, signals or pavement markings.

“Knowing your stuff” pays off in two ways: providing greater safety for your community, and in court. Lawyers in Kansas refer to these books for commonly accepted practices, especially the MUTCD, the Green Book, and the KU/K-State manuals, said Holmes.

Make sure these resources are close at hand.

### Resources to reach for if you have a Kansas roadway safety problem:


B— *Traffic Control Devices Handbook*, Institute of Transportation Engineers (ITE), 2001. This is a companion book to the MUTCD. Purchase at [www.ite.org](http://www.ite.org).


### Top 5 safety issues Key resources to address these issues (from the list above) in Kansas

2. school area safety ......... usually not applic. ......... A,B,E,F,G,H,I,J
3. roadway corridor safety ... C,D,G,H,I,J ............... A,B,E,F,G,H,I,J
4. speed on highways ......... usually not applic. ......... A,B,E,F,G,H,I,J
5. high accident locations ... C,D,G,H,I,J ............... A,B,E,F,G,H,I,J

Older and wiser

AARP puts a different spin on driver’s ed

... by Geneva Jacobs ............... 

In the United States, roughly one-third of all licensed drivers are age 50 and older. This number is expected to increase significantly as baby boomers continue to age. Research shows that age-related accidents begin to accelerate over the age of 50, as do accidents per mile driven. The potential for danger created by older drivers is one of the quickest growing highway safety problems.

The American Association of Retired Persons (AARP) addresses this issue by offering a driver safety program for older drivers. Formerly known as “55 ALIVE!,” this program was first developed in 1979 and now has over 7.5 million graduates. Kansas graduates about 5,000 participants each year.

The program is available to anyone age 50 or older. Its purpose is to help older drivers improve their skills and avoid both traffic crashes and violations. Participants go through a series of exercises in the course of the eight-hour program, but do not need to take a test to graduate.

The fee to take the course is $10, which covers part of the cost of offering the class. AARP subsidizes the remainder.

Financial incentive to take the course comes in the form of an auto insurance discount good for three years, offered by all insurance companies. State law requires an “appropriate” discount. As an example, State Farm Insurance offers a 4 to 5 percent discount. Mike Grosdidier, a State Farm agent in Lawrence, Ks., said a six-month premium of $350 would earn a discount of $15, adding up to a savings of $30 per year for three years. Not bad for a $10 investment in safety education.

Volunteers age 50 and older teach, administer and promote the course in local communities throughout the United States to help their peers learn how to handle adverse driving conditions, traffic hazards, and the effects of aging and medications on driving.

Self-assessment is an important tool in the program, as it helps drivers decide for themselves if they are still able to safely drive. AARP’s self-assessment tests are also available on their website at www.aarp.org/drive/.

Does the program work? Several studies have been performed to determine the effectiveness of this program. A major insurance company reported that graduates of AARP’s Driver Safety Program have safer and better driving habits upon program completion: tracking graduates over many years showed a 10 percent reduction in accident claims. In addition, evaluations of tens of thousands of graduates of the program by the California and New York Departments of Motor Vehicles and the New York Department of Insurance confirm reductions in the number of traffic violations and in accidents that would have resulted in injuries and fatalities.

This year, about 200 courses will be held across Kansas. If you are interested in attending a class, you must pre-register, because class size is limited. Local class information is subject to change. To locate a course in your community go to: www.aarp.org/drive/class.html. If you do not have internet access, call the State office of the AARP at (785) 232-4070 to find out where classes will be taught near you.

To become a sponsor or a volunteer, call 1-888-AARPNOW or go to: http://www.aarp.org/drive/.

Sources

All sources are from the American Association of Retired Persons:

AARP Driver Safety Program
Student Workbook, Edition 5;
AARP Driver Safety Program General Sponsor Informative Brochure;
AARP Driver Safety Program Mature Driving Fact Sheet;
AARP Driver Safety Program —2003 Program at a Glance;
55 ALIVE/Mature Driving Briefing Paper.

The progressive failure of one’s senses—sight in particular—reduces the amount of information that an older person is able to process. Response time is significantly reduced. Though no one can do much to halt the natural aging process, older drivers can educate themselves and take preventive measures by becoming more responsible drivers.
Pushing the (speed) limit

When you want to keep it simple

In 1996 Kansas Statute 8-1560, was revised by the state legislature to allow local authorities to raise the speed limit on county roads up to 65 mph. This revision was made on the assumption that raising the speed limit, if done judiciously, should not compromise the safety of the road.

So far, a handful of counties in Kansas have increased the speed limit on some roads over the default 55 mph. In a recent survey conducted by Lee Holmes of KDOT’s Bureau of Local Projects, 4 out of 50 responding counties said they had raised the speed limit.

In Grant County, all roads that were not previously posted were changed to 65. In Reno County, two county roads now have posted speed limits of 65: Yoder Road south of US-50, for 6.5 miles, and Haven/Buhler Road south of US-50, for nine miles. Russell County raised US-40 to 60 mph with the exception of five miles east of and one mile through the city of Russell. Stanton County posted all asphalt roads in the county with a 65 mph speed limit.

Kelly Brown of Russell County Road and Bridge said that the design of US-40 allowed the slightly higher speed limit without compromising safety. “The road is used quite often, and there have been no problems [with safety],” Brown said.

The most widely accepted method for determining speed limits is to set the limit at or below the speed at which 85 percent of the traffic is moving. This is the speed that has been determined safe by most of the drivers on the road. This speed limit, of course, can be revised based on information such as accident statistics, road geometry, obstacles, environment, and engineering judgment. In some cases, raising the speed limit on a county road can actually improve safety, particularly if the traffic is already moving faster than 55 mph.

“A well-executed, well-documented [traffic] study is critical in the decision-making process for many transportation-related projects and in reporting to elected officials and members of the community.” This statement, from the Handbook of Simplified Practice for Traffic Studies, describes the reason this handbook is so helpful to civil and traffic engineers in local jurisdictions. Not only does this publication describe several common, useful types of simplified traffic studies, but it does so in a way that is easy to understand.

This guide contains five main chapters: spot speed, traffic volume counts, sight distance, crash analysis, and school zone program. Each of the chapters serves to inform readers of considerations to take into account for each type of study.

Instructions for common methods for conducting these studies, including checklists, make up the greatest part of the handbook. Also included are examples applicable to each situation.

The Handbook includes numerous useful illustrations and charts to aid in understanding. The appendix contains forms for conducting studies and a chart for determining which studies might be most useful, based on accident patterns. This useful guide was published in November 2002 by the Center for Transportation Research and Education (CTRE) at Iowa State University. The entire publication can be found at www.ctre.iastate.edu/pubs/traffichandbook/. The PDF downloads found at this web site are divided into individual chapters—a handy feature that allows readers to obtain desired information without waiting for large PDFs to download.

If you don’t have internet access, call Jason Pfister at the KUTC at (785) 864-5658 to obtain a printed copy.
As gas prices climb higher and higher, alternate means of transportation become more appealing. Unfortunately, people who would like to use a bicycle for transportation face many challenges: long commutes, discourteous drivers, and a lack of protection from the elements. One challenge bicyclists shouldn’t have to face, however, is a lack of space in which to ride. This article will outline the process and considerations that go into creating bike lanes on existing roads.

For each of the many kinds of roads in existence, there is an appropriate form of bike facility, and an appropriate use for it. A bike lane is one such kind of facility. Bike lanes are most useful on roads which meet the several conditions: The road has a posted speed of 30 mph or greater, combined with a traffic volume of more than 2,000 vehicles per day, and the bike lane provides linkage on both ends to further bikeways. Bike lanes are especially suited to roads that carry large numbers of large vehicles such as trucks, RVs, and buses, and in areas that carry heavy bicycle traffic.

Bike lanes should be between 4 and 6 feet wide, with wider bike lanes on faster roads. They should also be designated one-way, except in special conditions, which means that bike lanes should be built on both sides of the road. Bike lanes should be designated with pavement stencils and a solid white stripe, per the Manual of Uniform Traffic Control Devices. A major safety issue with bike lanes is found at intersections. Factors to consider include guiding bicyclists and motorists through turns safely and the potential for confusion caused by numerous broken lines through an intersection.

Another safety consideration is the fact that bicyclists cannot clear many roadway obstacles in the same way cars can. For example, a cyclist must approach railroad tracks nearly perpendicularly, while automobiles can cross the tracks at an angle.

Improperly designed rumble strips and drainage grates in the bike lane can create hazards.

Improperly designed rumble strips and drainage grates in the bike lane can also create hazards for bicyclists.

Creating a bike lane with these considerations in mind will improve the bicycling experience and encourage new bicyclists to take to the roads. The new bike lanes will give bicyclists (and motorists) one less thing to worry about.

Detailed information on the treatment of bike lanes and intersections can be found in both the MUTCD and in AASHTO’s Guide to the Development of Bicycle Facilities.

For the past two decades, the Jayhawk and the Wildcat have joined forces to educate local government employees about traffic safety. TASK (Traffic Assistance Services for Kansas) is a cooperative program of Kansas State University (KSU) and the University of Kansas (KU), originally organized to help communities with site-specific traffic problems. However, the program soon moved over to providing training state-wide, to increase its reach. Since then, TASK has been working with its funding partners—the Federal Highway Administration (FHWA) and the Kansas Department of Transportation (KDOT)—to help public employees perform better and more safely in the transportation field.

**Funding**
Funding for TASK starts with the National Highway Traffic Safety Administration. The federal government provides money to KDOT for safety programs, which is then divided between KDOT’s Bureaus of Traffic Safety and Local Projects. Part of Local Project’s money is assigned to TASK. This money subsidizes materials and classroom-style training to cities, counties, and townships across Kansas.

**About the courses**
A committee of representatives from government highway agencies helps identify course topics. The participants in the courses vary, depending on the target audience of each topic. Regardless of the course, though, the program aims to provide practical information to all involved.

“The basic objective of the program is to provide participants with at least one new skill that they can use to make their streets and highways safer,” said Dr. Robert Stokes, who co-directs TASK with KU’s Dr. Thomas Mulinazzi.

The program serves about 200 people per year—about 25 attendees in each of about eight courses. These classes vary in focus and information covered. “The courses cover the latest highway signing standards and basic traffic engineering study techniques,” said Stokes.

The fees for each course are reasonable—$5 for Kansas public employees and $75 for attendees from the private sector. In addition, any attendee may elect to pay $10 for a certificate and a record of professional development hours (PDHs) at KSU.

**Benefits of TASK courses**
Attending the courses has many advantages for participants. For the individual, the training provides a chance to improve at work and possibly gain skills toward a promotion. Some TASK courses apply toward Kansas County Road Scholar requirements—see page 14. For highway agencies, the classes encourage safer operations, helping protect the agency from lawsuits. But most importantly, the courses provide participants with confidence and valuable information.

“When people leave [the courses], they seem enthused and thankful,” said Mulinazzi. “They seem to be more comfortable and better prepared to do their jobs.”

For more information, visit the TASK web site at www.dce.ksu.edu/dce/conf/task/index.html.

**Upcoming TASK courses**

**Manual on Uniform Traffic Control Devices (MUTCD) for Technicians:** This one-day course will provide an overview of the 2003 edition of the MUTCD and hands-on applications related to work zones (temporary signing), pavement markings, and stop versus yield control. This course is intended for local traffic/highway technicians. Earns 6 professional development hours (PDHs). Scheduled May 25 in Norton, Ks.

**Traffic Engineering for Technicians:** This one-day course will provide coverage of selected traffic engineering topics such as speed studies, volume studies, sight distance, traffic safety studies, pedestrian facilities, and roadside design. The course is designed for persons with non-engineering backgrounds in state and local road and highway departments and police departments. The course is also appropriate for persons with an engineering background with little or no training in traffic engineering. Earns 6 PDHs. Scheduled May 26 in Norton, Ks.

**Geometric Design for Very Low-Volume Local Roads:** This course will provide training in the application of the material in AASHTO’s Guidelines for Geometric Design of Very Low-Volume Local Roads (AASHTO, 2001). This will be a one-day course directed at professional engineering staff with responsibilities for the design of low volume local roads. Earns 6 PDHs. Scheduled June 23 in Salina, Ks.

**Design of Modern Roundabouts:** This will be a three-day course directed at professional engineering staff with responsibilities for the design of local streets and highways. The course will be taught by an internationally recognized expert in the design of modern roundabouts. Earns 18 PDHs. Tentatively scheduled for Spring 2004.
Calendar

2004

May 5-7
Building & Infrastructure Security, Reliability and Safety: Countering Terrorism and Other Threats
Boston, MA
Contact: ASCE
Phone: 800-548-2723

May 6-7
Structural Condition Assessment of Existing Structures (ASCE)
Las Vegas, NV
Call 800-548-2723

May 10-12
Kansas County Highway Association Annual Meeting
Garden City, KS
Call 800-548-2723

May 11-12
Transportation Safety Conference
Topeka, KS
Contact: KUTC
Phone: 877-404-5823

May 12-16
APWA Mid-America Conference & Exhibit
Overland Park, KS
Call: Terry Cox, APWA
Phone: 712-755-5137

May 18-20
Kansas Scenic Byways Conference
Wilson, KS
Call Debbie Devine at 800-684-6966

May 25
MUTCD for Technicians
Norton, KS
Contact: TASK Program
Phone: 785-532-5569

May 26
Traffic Engineering for Technicians
Norton, KS
Contact: TASK Program
Phone: 785-532-5569

June 10-11
Soil & Rock Slope Stability
Kansas City, MO
Contact: ASCE
Phone: 800-548-2723

Spring (tentatively)
Design of Modern Roundabouts
Location TBD
Contact: TASK Program
Phone: 785-532-5569

**June 16
Getting Real about Your Public Works Fleet
Click, Listen and Learn

June 23
Geometric Design for Very Low Volume Local Roads
Salina, KS
Contact: TASK Program
Phone: 785-532-5569

**July 22
Doing Due Diligence: What Lawyers Want Public Works Directors to Know
Click, Listen and Learn
Summer

*For information on calendar items indicated with an * or to suggest a topic for an LTAP workshop, contact: Rose Lichtenberg, LTAP Training Coordinator, 785/864-2594, rosemary@ku.edu.

**To arrange for a special APWA “Click Listen and Learn” workshop at your own location, call Ashley Gann at (816) 472-6100 ext. 3511. Cost is $150 per site.

L = meets Kansas County Road Scholar Program requirements

Reviews

... by Lisa Harris ...

FHWA Useful Safety Web Sites
A handy list of 35 web sites on safety related topics, including retroreflectivity, rumble strips, pedestrian and bicycle safety, speed management, work zone safety, highway-rail grade crossings, and much more.

Implementing Local Agency Safety Management
Washington State Technology Transfer Center, 2003. This brochure describes a federal initiative called Safety Management System (SMS) designed to help local highway and law enforcement personnel work together to reduce traffic fatalities and the severity and frequency of collisions.

Kansas Underground Damage Prevention Act Fact Sheet
Kansas Corporation Commission/ Kansas Pipeline Safety, 2003. This handy laminated card describes the basics of the Kansas One-Call program for excavators and underground utilities.

Shoulder Widening to Improve Roadway Safety
4 pages, South Dakota LTAP’s Special Bulletin #47. Shows how a county in South Dakota saved $2 million in a road reconstruction/widening project by widening just the shoulders and then resurfacing the entire roadway—a method that is standing the test of time.

United States Pavement Markings
FHWA, 2002. An excellent brochure showing pavement markings to use for various roadway configurations, including complex intersections. Includes a diagram of a roundabout showing appropriate pavement markings and symbols.

United States Road Signs
FHWA, 2002. A handy color brochure showing various types of signs used on roadways in the U.S. This is a good refresher for anyone who drives or places signs, and is especially useful for drivers relatively new to the United States.

See our web site for even more calendar listings.
Go to www.kutc.ku.edu and click on "Training Calendar."
Free Resources

Check off your selections, fill in the bottom portion, and return this form to:
KUTC Materials Request, 1530 W. 15th St., Room 2160, Lawrence, Kansas 66045
or fax to 785/864-3199

Videotapes
Videotapes can be borrowed for up to two weeks.

- **Paving Safety**
  Iowa DOT. Describes hazards of paving with cement and asphalt. Emphasizes taking personal responsibility for being aware of the changing hazards at a work zone.

- **Surveying Safety**
  Iowa DOT. Describes some of the major hazards surveyors face as they work in every phase of construction or pre-construction, both inside and outside a work zone.

Publications
You are free to keep these unless otherwise noted.

- **City of Lenexa Ordinance for Work Zone Set-Up**, One page, City of Lenexa, Kansas, 2004.
- **FHWA Useful Safety Web Sites**, one page.
- **Shoulder Widening to Improve Roadway Safety**, 4 pages, South Dakota LTAP.
- **United States Road Signs**, brochure, FHWA 2002.

Equipment
Available free—for loan to local highway agencies. Call us at (785) 864-5658 to arrange time period needed for loan. There could be a waiting list for these items.

- **Jamar Technologies, Inc. (DB-400) Turning Movement Counter Board**
  A basic model for recording turning movements at intersections. The board is lightweight and comes with its own case.

- **Jamar Technologies, Inc. (TDC-8) Turning Movement Counter Board**
  Can be used to do turning movement counts, classification counts, gap studies, stop-delay studies, speed studies, and travel time studies. The board is lightweight and comes with its own case.

Order Form

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Street Address

City          State       Zip+4

- send materials indicated
- address correction
- add to newsletter mail list
- send KUTC 2001 Lending Library Catalog and 2002 update (hard copy)

Note: Our catalog is available on-line, in a searchable format. Visit www.kstap.kutc.ku.edu

*For requests outside the United States: After receiving your request, we will notify you of the postage cost and will send materials after receiving payment for postage.*
Let us at the KUTC help you find the answers to your transportation-related questions.

KUTC, 1530 W. 15th St. #2160, Lawrence, KS, 66045
Call 785/864-5658 (fax 785/864-3199)
www.ksltap.kutc.ku.edu

The Kansas Local Technical Assistance Program (LTAP) is an educational, research and service program of the Kansas University Transportation Center (KUTC), located in the University of Kansas School of Engineering. Its purpose is to provide information to local and county highway agencies and transportation personnel by translating into understandable terms the latest technologies in the areas of roads, highways and bridges.

The KUTC Newsletter is one of the KUTC's educational activities. Published quarterly, the newsletter is free to counties, cities, towns, tribal governments, road districts and others with transportation responsibilities. Editorial decisions are made by the KUTC. Engineering practices and procedures set forth in this newsletter shall be implemented by or under the supervision of a licensed professional engineer in accordance with Kansas state statutes dealing with the technical professions.

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