



KS LTAP Newsletter

Winter 2012

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Before You Use that Chainsaw

By Nate Vander Broek

Read these tips for safety.

If you use a chainsaw once a year, or even every day, it never hurts to review important chainsaw safety and maintenance tips. The following questions were raised recently by LTAP customers.



each leading edge to round the corner back to its original shape. When finished, test it again. You should be getting wood chips instead of fine dust.

Can you use an angle grinder for filing? No, an angle grinder is too aggressive. It will create too big of a bite, causing the tooth to rock. This will create a wear pattern into the rivets and ruin a chain very quickly. A flat file is recommended.

For detailed instructions and illustrations, see Stihl's Sharp Advice for Chain Saw Owners at <http://www.stihllibrary.com/pdf/SharpAdvice061301final.pdf>

How do you know if the chain drag is too high? The strongest indication is when you begin to see dust instead of wood chips emitting from the saw. This means the drag is too high and must be corrected. If the drag is too high, the chain will cut very slowly; if too low, the cutter will grab too much wood and jam, and may cause kickback.

To correct it, first, check the depth gauge for the correct height before you sharpen the cutters. Place the depth gauge on top of the chain so that one depth gauge is exposed in the slot. If the depth gauge sticks up above the slot, file it level with a flat file. Then make sure all the other depth gauges are filed to the same height. Finally, slightly file

Do oil spots hurt chainsaw chaps?
Can you wash them? Yes, oil can damage chainsaw chaps if the oil saturates the chaps. When this happens, the material cannot respond and protect as well as when it is clean. If the oil is merely sitting on the

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How to Read a Material Safety Data Sheet

An MSDS has a lot of information to wade through. Here's some help.

Awareness of the importance of safety has increased in almost every industry over the past several decades. This awareness has grown in response to activities by the government and the public as well as the news media, including coverage of major chemical accidents. The Occupational Safety and Health Administration (OSHA) in 1989 expanded its Hazard Communication Standard to cover all employees who could potentially be exposed to hazardous chemicals in their work areas—regardless of the place of employment or the nature of the work. The Hazard Communication Standard requires that chemical manufacturers and importers thoroughly evaluate chemicals they produce and import to

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Chainsaw safety *Continued from page 1*

surface of the chaps, it is not a problem. Some chaps, such as those with Entex cut-retardant material, can be washed in a washing machine, while other chaps, such as those made with Kevlar, are not washable.

What type of clothing should I wear when using a chainsaw? Clothing must be sturdy and snug-fitting, but loose enough to allow freedom to move. Avoid baggy jackets, scarves, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that can become entangled with the saw or brush. Wear heavy-duty, non-slip gloves and sturdy boots with non-slip soles. To protect your eyes, wear goggles or safety glasses with adequate top and side protection. Always wear a hard-hat to protect your head and ear plugs or ear muffers to protect your ears.

What's the difference between summer and winter bar oil? In the cold winter months, oil thickens, making the oil's viscosity similar to that of honey or molasses. When the oil is thick, it does not pour well. To solve this problem, when the temperature is below freezing, it is recommended to use winter-specific oil because the thinner oil will pour better in cold conditions. When the temperature is above freezing, summer bar oil works best. In Kansas, because of moderate winter temperatures, summer-specific oil will probably work for most of the year. Winter oil would be required for winter use in northern states, such as Wisconsin and Minnesota.

What are the best ways to avoid kickback? Kickback may occur when the upper quadrant of the bar nose on a moving chain saw comes into contact with a solid object or is pinched. When this happens, the saw flings up and back, sometimes towards the operator. To avoid kickback:

- Hold the chainsaw firmly with both hands and maintain a secure grip.
- Be aware of the location of the guide bar nose at all times.
- Never let the nose of the guide bar contact any object. Do not cut limbs with the nose of the guide bar. Be especially careful when cutting small, tough limbs, small-size brush and saplings that may easily catch the chain.
- Don't overreach.
- Don't cut above shoulder height.
- Begin cutting and continue at full throttle.
- Cut only one log at a time.
- Use extreme caution when reentering a previous cut.
- Do not attempt to plunge-cut if you are not experienced with this cutting technique.
- Be alert for shifting of the log or other forces that may cause the cut to close and pinch the chain.
- Maintain saw chain properly. Cut with a correctly sharpened, properly tensioned chain at all times.
- Stand to the side of the cutting path of the chainsaw.

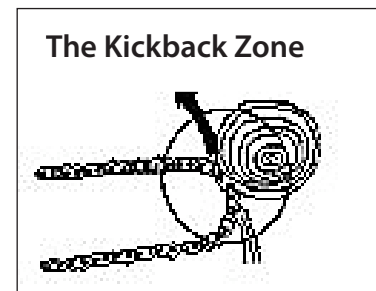
Chainsaw Tips from an Expert

Larry Wilson, Douglas County Public Works employee and owner of a firewood business in Lawrence, offers the following chainsaw tips:

- A sharper chainsaw is safer and more productive than a dull one. When a chainsaw is creating fine dust, instead of woodchips, and when you have to push on the saw instead of allowing it to self-feed, it may be time to sharpen it. If possible, carry a spare sharpened chainsaw with you.
- Consider the size of the chainsaw versus your experience level. A small saw is easier and safer to handle than a large saw. But, also make sure the size of the saw matches the job. For instance, it does not make sense to use a 12 inch bar for cutting a 30 inch diameter tree.
- When moving between cutting areas, shut off the chainsaw or use the chain brake.
- If your chainsaw has a two cycle engine, be sure to use the correct gas oil mixture ratio. Consult your chainsaw owner's manual for the correct ratio. To help figure out how much oil to add to achieve the recommended ratio of gas to oil, use an online calculator, such as the one found at <http://www.csgnetwork.com/oilfuelcalc.html>.

Can marks be put on the bar to indicate where the "kickback" zone is? Yes, marks can be added to the kickback zone, which is the upper quadrant in the nose.

The circle in the image at right shows the kickback zone as a saw makes contact with a log. Use this image as a guide for marking the kickback zone in the upper quadrant of your particular chainsaw.



<http://www.kccoh.com/oshanswiers/safety>

What is the difference between pull-in and pushback?

Pull-in occurs when the bottom of the bar on a moving chain saw is pinched or catches or hits a foreign object, causing the saw to suddenly stop and pull the saw forward. To avoid pull-in, start a cut with the chain rotating at full speed and the bumper spike in contact with the wood. Also, use wedges to open the kerf or cut.

Pushback occurs when the chain on the top of the bar is suddenly stopped when it is pinched, caught or encounters a foreign object in the wood, causing the saw to drive towards



the operator. Pushback frequently occurs when the top of the bar is used for cutting. To avoid pushback, do not cut more than one log at a time, do not twist the saw when withdrawing the bar from a plunge cut or underbuck cut because the chain can pinch, and be aware of situations that may cause materials to pinch at the top of the chain.

What is the best method for starting the chainsaw?

The best method is when the chainsaw is on the ground. First, make sure the chain brake is engaged and then place the chainsaw on firm ground in an open area. Hold the front handlebar firmly with your left hand and press down. If the saw has a rear handle that is level with the ground, put your

right foot's toe into the rear handle and press down. Using your right hand, pull out the starter grip slowly until you feel resistance, and then pull it back quickly and forcefully.

Another method allows you to start the chainsaw while holding it between your legs. First, make sure the chain brake is engaged and hold the front handle of the chainsaw with your left hand. Your left arm should be in a locked or straight position. Next, hold the rear handle of the saw very tightly between your legs, right above the knees. Pull the starter grip slowly until you feel resistance, and then pull it back quickly and forcefully.

Consult the sources below for more information on chainsaw safety. ■



Sources:

- Stihl Chain Saw Safety Manual. http://www.stihl.com/p/media/download/uk-en/STIHL_Chain_Saw_Safety_Manual.pdf
- Stihl - Sharp Advice for Chain Saw Owners. <http://www.stihllibrary.com/pdf/SharpAdvice061301final.pdf>
- Interview – Kevin Viestenz, Stihl Representative, December 20, 2011
- Oregon – Frequently Asked Questions. <http://www.oregonchain.com/pro/service/faq.htm>
- Canadian Centre for Occupational Health and Safety http://www.ccohs.ca/oshanswers/safety_haz/chainsaws/sawoperations.html

How to read an MSDS *Continued from page 1*

determine their hazard potential. If a chemical presents a hazard, a **material safety data sheet (MSDS)** must be developed to communicate the hazard potential to users.

A great deal of information is generated in the course of fulfilling regulatory requirements for product registration. The US Environmental Protection Agency requires approximately 120 tests, yielding primarily toxicological, environmental and physical property data, much of which can be used in the MSDS.

Chemical manufacturers are required by the Hazard Communication Standard to provide an MSDS to the purchaser of the product at the time of the first order and thereafter anytime the MSDS is significantly revised. The MSDS may be included with the pallet on which the product is shipped or it may be submitted electronically or delivered by mail. As the chemicals are further distributed to satellite suppliers, dealers, or users, a copy of the MSDS must accompany their original orders. Thus, MSDSs are disseminated along the

Guide for Reading an MSDS
 The University of Missouri Extension service has an excellent guide for understanding the different categories of information found in a chemical's material safety data sheet in the ANSI format. It presents the 16 sections of the MSDS with a brief interpretation of the contents. To view the guide, go to <http://extension.missouri.edu/publications/DisplayPub.aspx?P=G1913>, or to order a hard copy, turn to page 15.

distribution chain until they eventually reach businesses whose employees will be applying the products.

Although the MSDS is a necessary part of the Hazard Communication Standard, there is no specific format prescribed for the presentation of its contents. Therefore, MSDSs from various manufacturers may differ dramatically in organization and appearance yet still present the required data.

To help bring order to the MSDS format, the American National Standards Institute (ANSI) published a voluntary standard prescribing the division of MSDS data into 16 sections. The sequence and titles of the sections as specified in the standard would

create consistency from manufacturer to manufacturer. For data sheets prepared in accordance with the ANSI standard, the 16 section titles and their order of appearance is the same from manufacturer to manufacturer, but the amount of information within a given section is left to the discretion of each individual manufacturer.

For more information, see the sidebar above. Another good source of information is Interactive Learning Paradigms Incorporated at <http://www.ilpi.com/msds/faq/parta.html#tutorial> ■

Adapted from Understanding the Material Safety Data Sheet, University of Missouri Extension. See link in the sidebar above.



Protect What's Behind the Vest

By Nate Vander Broek

This video provides very personal pleas for a safer work zone.

Work zones put highway workers in situations where “death and injury could be a heartbeat away” begins KDOT’s 2009 video titled *Behind the Vest*. This seven minute video provides:

- an emotional plea for safe driving in a work zone;
- a reminder for crews to remain aware of potentially hazardous conditions in a work zone; and
- condolences to family members and friends who have suffered the death of a loved one who died while working in a work zone.

The video encourages drivers to be alert, patient and courteous while maneuvering through work zones. A law enforcement officer stresses watching for cones, barrels, and signs—and especially watching for highway workers out there doing their jobs. Brian Hoke, highway maintenance supervisor in KDOT’s Overland Park Subarea, adds a human touch to this advice when he asks drivers to slow down when going through a work zone so that he will be able to come home every night to see his children and grandchildren.

Work zone dangers are emphasized through several testimonials from employees who have had close calls while in a work zone.

Jim Antrim, striping supervisor, Norton Subarea, recalled a frightening time when a mini-van hit their crash attenuator and ended up crossing the median and stopping in a field on the other side of the highway.

Dave Tipton from the Gardner Subarea had a very close call when he had to jump out of the way of an oncoming vehicle approaching on the shoulder.

Curtis Haehn, from the Hugoton Subarea, warns workers that “If you’re out on the road, you better be watching out because they’re not. Too many of them are not.”



www.shutterstock.com / Brian Finestone

The video is most effective when personal, and unfortunately tragic, experiences are shared. It is difficult not to feel moved when a family member recalls the time she first learned of the death of her son. On June 1, 2005, Scott McDonald was killed on Highway 75 north of Topeka while collecting trash. Scott’s mom, Shirley McDonald, said, “I just remember my husband coming forward and saying to me, ‘It’s Scotty, he’s gone,’” said McDonald, “and I just looked at him and thought what are you talking about?—I mean the last time I’d seen him was just 12 hours before and he was a perfectly healthy, happy, young man.” After three years, McDonald still has a hard time believing that her son won’t be walking through the door.

Kevin Palic, KDOT Construction Engineer in Seneca, received a dreaded

call that one of his guys had been hit. When he arrived at the scene, the situation was even worse than he knew: Two people has died. [For more about Palic’s and McDonald’s experiences, see sidebar below.]

These real-life stories help move the video beyond a typical request for drivers and workers to be cautious and courteous in a work zone; it brings the viewers into the reality that this is dangerous work, lives can be lost, and family and friends will be hurt. As Shirley McDonald somberly stated: “You can’t bring people back. When they’re dead, they’re dead.”

The video concludes with a list of the 33 KDOT employees who have been killed in work zones since 1950, as well as KDOT’s condolences to all family members, friends and co-workers of the deceased.

This video is available from our lending library. Order your copy of the DVD on page 15. Or you can view the video online at the link below. ■



Sources:

- Behind the Vest video, <http://www.ksdot.org/burcompser/podcast.asp>
- Kansas Transportation Online Community, <http://ktoc.net/>

Blogging about Kansas’s Work Zone Safety

Check out KDOT’s Kansas Transportation Online Community (K-TOC) site to learn more about work zone safety (and dangers) in Kansas.

To read more about Shirley McDonald’s experience of losing her son in a work zone crash, check out the blog titled “Work Zone Safety – A Mom’s Worst Nightmare,” or to read more about Kevin Palic’s experience of responding to a work zone crash, read the blog titled “A Horrible Day.”

Both blogs can be found using the following link: http://ktoc.net/blog_community.aspx?tagname=work%20zone%20safety.

If you are interested in reading blogs about topics besides work zone safety, go to the K-TOC site at <http://ktoc.net> and click on the Blogs link towards the top of the page to see other choices for topics.



Stop! ... And Take Our Flagging Quiz

Starting soon, crews will be back at work on Kansas highways and roadways. While often overlooked, flaggers are an important component to an effective and safe roadside operation. How well do you know the proper flagging procedures and etiquette? Take the following “true or false” quiz and find out.

True or False?

1. A flagging paddle should be at least 5 feet high.
2. The flagging sign should be 12 inches by 12 inches in size.
3. Flags should only be used during emergency situations.
4. When flagging near a hill, stand over the crest of the hill.
5. Flaggers should stand in the path of oncoming traffic for optimal visibility.
6. When there are two flaggers, communication between flaggers can be done through visual contact, two-way radios and flag carrying.
7. Nighttime flagging does not require special equipment.
8. Your physical appearance is critical to assure motorist respect.
9. It is important to signal crew members when you encounter a rude or angry driver.
10. When an emergency vehicle approaches, allow the vehicle to pass immediately.

Answers

1. True. A flagging paddle must be at least 5 feet high.
2. False. The sign should be at least 18 inches x 18 inches wide with at least 6 inch high letters, according to the 2009 MUTCD, which regulates work zones in Kansas. The stop/slow paddle must be retroreflective. The background of the stop face must be red with white letters and a white border. The background of the slow face must be orange with black letters and a black border.
3. True. It is very difficult to direct motorists by waving a flag. During emergencies, a 24" x 24" red flag on a 36 inch long staff may be used until paddles are available.
4. False. When flagging near a hill, stand in front of the hill, so that you are visible to oncoming traffic. Never stand over the crest of the hill or around a sharp curve. Also, try to avoid standing in the shade. The flagger must be visible by drivers from at least 500 feet.
5. False. Stand in a safe position on the shoulder of the road facing traffic. Never stand in the path of oncoming traffic. Once traffic comes to a halt, move to a position near the center line so that oncoming drivers can see you. Always face oncoming traffic and stand alone, away from other workers.
6. True. Visual contact works when flaggers are close enough to be able to read each other's paddle and signals. Two-way radios work best, even when visual contact is possible.
7. False. When flagging in the dark, special equipment must be used. A flagger must be equipped with a flashlight and clothing with retroreflective material so that the flagger is visible from at least 1000 feet. If flags are used at night, the flag must be retroreflectorized red.
8. True. To gain motorist respect, flaggers shall maintain a clean, neat appearance, wear clothing that does not distract drivers and wear shoes that are appropriate and comfortable. Flaggers shall not use personal radios or headphones, talk to friends on cell phones, or read books while working.
9. True. Besides warning crew member of an approaching angry driver, you must also protect yourself, write down the license plate number and description of the vehicle, and report the information to your supervisor.
10. False. When an emergency vehicle approaches, do the following steps: radio or alert others on the crew; make sure the roadway is clear; when clear, motion the emergency vehicle to move out of the traffic line and through the work zone; hold all other vehicles until it is safe for them to proceed.

For more information, consult the sources below.



Sources:

- State of Kansas KDOT Flagger Handbook, March 2008. www.ksdot.org/burTrafficEng/PDF/KDOTFlaggerHandbookEg.pdf
- Flagger's Handbook, February 2008. Cornell Local Roads Program. http://www.clrp.cornell.edu/PDF/flaggers_guide_02-08-web.pdf
- KDOT Flagger Safety Training Video, 2004. http://www.ksdot.org/burTrafficEng/flagger_video.wmv



KDOT Korner

Job-Simulation Tests in Pre-employment Physicals Help Cut Workers Comp Claims

By Lisa Harris

In the past few years, KDOT has been trying a new approach to reducing workers comp claims. The agency is requiring a different kind of physical exam for prospective employees who will operate heavy equipment—one that, along with checking the necessary vitals, assesses if the applicant has the physical ability to do the job. As a result, workers comp claims have significantly declined for the agency. This article will describe the program and its striking results.

KDOT's program started in 2009, when KDOT's rate of workers comp claims was particularly high. KDOT Safety Coordinator Kelly Gaer talked with peers in other states to learn if they had any successful programs for decreasing claims at their own agencies. Close to home, Missouri DOT started a program with pre-employment physicals that reduced their workers comp claims tremendously. KDOT decided to try something similar.

Gaer did some preliminary research about which KDOT employees were the most highly represented in workers comp claims. He learned that 77 percent of the claimants were equipment operators in the field, and a large percentage of those had been on the job for only three or years or fewer.

This begged the question: "Why?", said Gaer. "Was it our hiring techniques? Were the required physical exams missing things? We checked to see how many of our applicants had been turned away because they did not pass a physical. The answer was: None."

So KDOT set out to develop a similar to MoDOT's to re-vamp their physicals for physically demanding positions. Up until then, the physicals KDOT required looked just at vitals—blood pressure, heart rate, etc. The physicals did not consider important physical requirements for the job. "It was an exercise in spending money on a pre-



Newer workers were disproportionately represented in the number of KDOT worker's comp claims. Now, pre-employment tests help find candidates best fit for the job.



employment test that was not helping us at all," Alice Burney said. Burney is employee relations manager for KDOT and worked with Gaer on developing the new job simulations tests.

Gaer and Burney created a contract to address three needs: 1) a validated job analysis of the work, 2) a pre-employment/post-offer physical and 3) a work simulation test for applicants. The contract was then put out for bid per the requirements of the State Procurement Office. The contractor who won the bid is the Athletic Rehabilitation Center (ARC).

Gaer said the people at ARC did their homework. Several representatives of the company went out on the job to see firsthand what KDOT employees do. They weighed the tools and materials normally handled by equipment operators, like shovels loaded with aggregate, and guardrail, and determined how much weight an operator would lift on the job. The weight and size of the object were considered, as well as the height to be lifted. They measured the height of the dump trucks beds and truck steps and averaged those to create a test to measure strength of knees and hips.

Using the information collected, ARC staff developed six different tests for applicants to perform under the supervision of a physical therapist. See the sidebar on page 7 for more details on the tests. The tests cost \$125 per person, paid by KDOT. Physicals are done in clinics within 30-40 miles of most KDOT locations—typically the same location as drug and alcohol testing. Sometimes ARC and KDOT will set up the physicals at the local shop and use KDOT equipment for the tests.

The physical therapist who administers the tests also looks at the applicant's use of his or her body. Certain characteristics make applicants a higher risk for injury, such as prior back surgery or poor body mechanics in lifting.

The job simulation tests are required only for new-hires for physically demanding positions, and for existing employees who wish to switch to such a position. Employees already in those positions will receive safety training from ARC covering different lifting techniques, body mechanics, stretching exercises, and how the body's physical abilities change over time.*



Job-Specific Tests Conducted During Physical Required for Equipment Operator

Test I. The candidate lifts a 15 lb weighted shovel from the floor to a 50" height, simulating shoveling from the back of the dump truck. Repeat 20 times. (Simulates shoveling dirt out of a dump truck with the back tilted down to 50")

Test II. The candidate lifts a 90 lb snow plow blade (48" x 8") from the floor, carries it 50 ft, and places it on a 56" high shelf. Repeat 2 times. (Simulates loading/unloading a snow plow blade from the back of a dump truck.)

Test III. The candidate lifts (with one hand) a small NIOSH box or tool box weighted to 20 lb from the floor, carries it 500 ft, and returns it to the start position. The candidate may alternate hands during the task if desired. (Simulates carrying the 3 gallon container of Gennzoil seal. The other hand must be free to hold the nozzle.)

Test IV. The candidate lifts two 45 lb dumbbells from the floor and holds them at a 30" height for 1 minute, and returns them to the start position. (Simulates replacing a guard rail.)

Test V. The candidate pulls 70 lbs at a 36" height (using an SM22 machine with the long straight bar attachment) a 10 ft distance. Repeat 10 times. (Simulates pulling a cement router uphill or off the trailer.)

Test VI. The candidate ascends and descends a 24" step. Repeat 5 times. (Simulates climbing on/ off heavy equipment.)

KDOT's workers comp payments to relatively new employees decreased significantly in 2010 after establishing the new requirement for physicals with job-specific tests. Here are some numbers:

Year	Percentage of injuries of newer employees	Claims total
2008.....	32% of injuries were employees with fewer than 3 years on the job	\$302,981.47
2009.....	33% of injuries were employees with fewer than 3 years on the job	\$360,572.44
2010.....	8% of injuries were employees with fewer than 3 years on the job\$75,141.02

Since September 2009, 259 work simulation physicals have been conducted on potential candidates for employment. Work classifications within KDOT that have been tested are: Equipment Operator, Equipment Mechanic and Engineering Technician. Out of the 259 physicals conducted, 16 candidates were found to be *not capable*. When a candidate is found to be *not capable* it is because he or she did not complete the test or failed parts of the test. The calculated potential savings to KDOT as a result of conducting these tests (rather than paying workers comp claims for employees injured because they are not capable of the work) is over \$1.5 million since the program's inception.

The training classes will be getting under way at the KDOT area offices starting March 2012 and will be repeated annually. [When we asked if classes would be open to local agencies, Gaer said no, not initially, because he expects the classes will be full, but KDOT would consider that for the future.]

Burney said developing the tests with the contractor gave KDOT an opportunity to update their job descriptions to more fully describe the physical abilities needed.

Another benefit of working with ARC on the simulation tests is that ARC is the same contractor that works with injured KDOT employees to help them recover and return

to work. Burney said that ARC's therapists understand the physical requirements of KDOT clients' jobs, and they make sure that the employees are ready for the rigors of their jobs before they are released for duty. This reduces the likelihood of re-injury.

For more information on ARC, visit their website at <http://www.arckc.com>.

How's the program working? Impressively well! See the above sidebar. KDOT has calculated its cost-savings to date at over \$1.5 million as a result of starting the new requirement for job-specific tasks.

For more information on KDOT's requirement for physicals, contact Kelly Gaer at (785) 296-4256 or at KellyG@ksdot.org, or Alice Burney at 785-296-0429 or aliceb@ksdot.org ■

*Gaer said it's common for an older employee to be in denial about his or her changing ability to do physically demanding tasks. "It's not the one-time lift that's the problem," Gaer said. "It's the repetitive motion that will get you." The training classes will help drive that point home.



Sources:

- January 12, 2012 interview with Alice Burney, KDOT employee relations manager, Bureau of Personnel Services, and Kelly Gaer, safety coordinator, Bureau of Construction and Maintenance.



A Leg Up

Creating Bicycling Master Plans: Wichita and Topeka

By Nate Vander Broek

This article concludes a series on the promotion of bicycling and walking in Kansas with a summary of the steps taken by Topeka and Wichita to develop their Master Bicycle Plans.

Topeka's Bikeway Master Plan

The City of Topeka is seeking to make their city more bike friendly. The focus is less on bicycling for recreational purposes, and more on bicycling for basic transportation, such as commuting to work or running errands. According to Karen Hiller, Topeka councilperson, local residents feel that having a good bikeway system is a symbol of a progressive community, makes the city more livable, and has a positive impact on economic development.

The City hired RDG Consulting, based in Omaha, to create its Bikeway Master Plan. The Plan's goal is to give the city a system that bicyclists can use immediately, and also something that can evolve and grow over time. Funding for the plan came from \$96,000 in federal transportation funds through the Metropolitan Topeka Planning Organization (MTPO).

A critical part of the process was creating good support teams. The City and RDG formed a steering committee of police officers, Council members and MPO representatives. They also formed an advisory group of a diverse group of bicycle enthusiasts, such as people from local bicycle clubs, professionals who commute by bicycle, recreational cyclists, and people who bike as their only mode of transportation.

"When 14 of the 15 people showed up for meetings, we knew we had a group dedicated to creating the new bikeway system," said Hiller.

Martin Shukert, the lead planner at RDG working on this project, said it's important to first get to know



Metropolitan Topeka Planning Organization

Above, Topeka's bicycle plan stipulates that trails like the one above be integrated into the existing transportation system.



bicycle routes by riding them. RDG used this reconnaissance to learn about existing conditions, current facilities, topography, destinations, and potential opportunities in the bicycle network. They learned what streets would (and would not) work well for bicycle use.

The next step was an online survey to ask Topeka residents where they live, how often they ride a bike and for what purpose. The survey also asked residents to examine a variety of images and indicate their comfort level for bicycling on that road. For example, most people said they would be uncomfortable riding on a major commercial street without a bicycle lane, while they would be comfortable riding on separated bicycle trails or lanes. The number of people who completed the survey exceeded expectations with over 1,000 respondents.

A market analysis, the next step of the process, found that approximately 9,500 bicycle trips were made per day in Topeka. If a new bikeway system

were implemented, RDG estimated the number of trips could more than double to almost 24,000 daily trips and exceed 40,000 by 2030.

The city held four two-day bicycle planning workshops (charettes) in four different sections of Topeka. These workshops allowed residents to help with the planning process by making suggestions and sharing bicycling experiences.

With the criteria that the trail be integrated into the existing system, safe, comfortable, with direct access to the transportation network and a positive experience to use, RDG and the City of Topeka created the proposed bikeway network. It contains 26 point-to-point through-routes, as well as connecting links and multi-use trails. To view the complete map, as well as the Plan's other recommendations, go to <http://www.rdgusa.com/crp/downloads/KAPAConferencePresentation.pdf>.

The Plan estimates costs that range from a low of \$7,500 per mile for a shared route marking on an existing street, to \$385,000 per mile for a 10-foot concrete trail on separated right-of-way. Implementation of the Plan will be done in five phases over about 15 years. Criteria for phasing includes compliance with transportation system requirements, response to demonstrated demand, integrity or continuity of the trail system, interaction with existing trails, gap filling, opportunities and develop-ability.

Wichita's Bicycle Master Plan

According to the 2010 National Citizen Survey™, the residents of Wichita are interested in seeing improvements to Wichita's bicycle infrastructure and gave the City a low ranking for the ease of bicycle travel in the city. With this information in mind, the City of Wichita began work



on improving their bicycle trail system through the creation of the Wichita Bicycle Master Plan. According to Scott Wadle, senior planner for the City, the Plan's intent is to make getting around Wichita on a bicycle easier, safer and more convenient. Using approximately \$195,000 in federal funds, the City hired the consulting firm Toole Design Group, based out of Seattle, WA, to help create the Plan. The firm's project lead, Peter Lagerwey, was project manager for Seattle's Bicycle Master Plan.

The first step in building the plan was collecting public input. This was done through an online interactive map tool called Community Walk that allowed residents to view a map of Wichita and plot lines on the map showing where they want to ride or where improvements to the bicycle infrastructure should be made (<http://www.communitywalk.com/>). The completed maps created by the participants were used to help paint a picture of current conditions of existing trails and potential locations for future trails.

Next, an online survey was employed to learn why citizens choose to ride or not ride a bicycle. As with Topeka, Wichita was very pleased with the response of over 1100 completed surveys.

After the online survey, seven focus groups were interviewed. Representatives from the following groups were interviewed: Inter-Faith ministries (a non-profit group that provides assistance to those in financial need); developers; K-12 students; Wichita Transit; African-American communities; Latino communities; and neighborhood associations. They also talked to community stakeholders, which included the Chamber of Commerce, the Wichita Downtown Development Corporation (WDDC), and bicycle shop owners.

The City hosted an open house to get user input as well as educate residents about the bicycle plan; 178 people attended. People were asked to vote (using dot stickers) on their preferred plan objectives and project priorities, draw on maps to show where they would like to ride, and

A Helpful Resource for Creating a Bicycle Plan

Peter Lagerwey, Lagerwey, project lead for Wichita's Bicycle Master Plan, produced a very helpful resource for any city or organization interested in creating its own bicycle plan. This document is called *Creating a Road Map for Producing & Implementing a Bicycle Master Plan* and can be downloaded at http://www.bikewalk.org/pdfs/BMP_RoadMap.pdf. Lagerwey breaks the process of developing and implementing the bicycle master plan into three phases.

Phase 1: Before the Plan. (6-12 months)

1. Establish a need and create buy-in.
2. Secure funding.
3. Find a home for the bicycle master plan.
4. Develop a plan for internal review and involvement.
5. Invite public involvement by creating a bicycle advisory committee (BAC).
6. The BAC agrees on its mandate and role.
7. BAC develops a work plan and timeline.
8. BAC decides plan type: policies, projects, or programs?
9. Develop consensus on goals for plan.
10. Develop consensus on the objectives of the plan.
11. Develop consensus on the content of the plan.
12. Determine what role consultants will play (if any).
13. Write your RFP (If you are using a consultant).
14. Select your consultant.

Phase 2: Developing the Bicycle Master Plan. (9-18 months)

1. Define the project manager's new role.
2. Establish communication rules.
3. Reporting and billing.
4. Set internal review team meetings.
5. Maintain public outreach.
6. Prepare a draft plan.
7. Set priorities.
8. Plan implementation.
9. Plan accountability, evaluation, and updating.

Phase Three: Implementing the Plan.

1. Get the plan adopted.
2. Immediately begin implementing the accountability strategies contained in the plan.
3. Develop an annual work plan.
4. Ongoing public outreach.
5. Document your success.
6. Seize the day.

complete comment forms. Based on these data, the Toole Group created four draft network maps (go to <http://wichita.gov/CityOffices/Planning/AP/Comprehensive/BicycleMasterPlan/> to see all four maps). Currently, Toole is writing recommendations and reviewing existing plans and policies.

Scott Wadle, senior planner for the City of Wichita, recommends the

following advice when working with a consultant on a project such as this:

- Schedule a weekly phone call.

This keeps the project moving and prevents unnecessary stress in trying to reach a surprise deadline. Constant communication with the consultant is essential for a smooth running project.

- Set up payment with the

Continued on page 10



Creating bicycling master plans *Continued from page 9*

consultant based on deliverables. They should only get paid for completed work.

• To implement the Plan, work directly with elected officials who can help make it happen and can help change policies.

• Try to get a list of projects into the Capitol Improvements Plan (CIP) so they will be scheduled.

• Work with an advisory committee and set up a one-year action plan to keep the overall plan focused.

Conclusion

Using the Topeka and Wichita examples and following the steps outlined on page 9, your city or MPO can take steps toward creating its own bicycle master plan. Use the resources below for help with your own plan. ■



Sources:

- Wichita Bicycle Master Plan, <http://wichita.gov/CityOffices/Planning/AP/Comprehensive/BicycleMasterPlan/>
- The Topeka Bikeways Master Plan, <http://www.rdgusa.com/crp/downloads/KAPAConferencePresentation.pdf>
- Kansas APA Presentation by Martin Shukert, RDG Planning and Design, Karen Hiller, Topeka Councilmember, and David Thurbon, City of Topeka Planning Director, October 20, 2011
- Interview, Scott Wadle, Senior Planner for the City of Wichita, January 3, 2012
- Sample bicycle plans. <http://www.bicyclinginfo.org/>
- Pedestrian and Bicycle Planning: A Guide to Best Practices, www.vtpi.org/nmtguide.doc
- Creating a Road Map for Producing & Implementing a Bicycle Master Plan. http://www.bikewalk.org/pdfs/BMP_RoadMap.pdf.

Lessons Learned From a DOL Inspection *By David Ball, Riley County*

Voluntary safety inspection uncovers areas of improvement.

In 2010 Riley County Public Works invited the Kansas Department of Labor (DOL) to inspect our new public works campus to help us create a safer work environment for our employees. I would like to share some of the things we learned in the process that I think will benefit most organizations that may read this article.

The topic of **emergency showers** is as good place to start as any. How often do you inspect and flush them? I was flushing them every two weeks, but the DOL recommended every week. Showers need to function properly when called upon, and they need potable water to be effective. Studies show that the seconds immediately following an eye injury or chemical splash are often critical to minimizing bodily damage. The presence of microorganisms such as bacteria, fungi, and amoebae (or “funk” as I like to say) in flushing fluid can pose an added health risk to an injured eye. An injured eye is compromised by having less resistance to infection.

Extension cords were another item that caused us some grief. Are yours in good repair? Some of ours were not. Extension cords tend to get frayed around the ends. How about storage of your extension cords when not in use? Most county agencies like ours primarily use them in the winter to keep diesel engines warm. Are they brought in out of the summer sun for storage?

While on the subject of electric cords, also make sure your ground pin is in place. Some people have been known to cut off a ground pin to make it fit. That’s a safety hazard.

All of these precautions are of course intended to keep

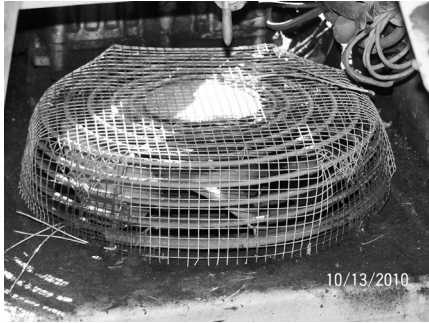
you from getting a “shocking” dose of electricity flowing through your body. The severity of electric shock depends on several factors such as voltage, the amperage, the type of current, the body’s resistance to the current, the current’s path through the body, and the time the body remains in contact with the current. Depending on all these factors, results of electrical shock can range from a mild tingling sensation to death.

Machine guards are another subject of importance in a DOL inspection. Guards need to be in place to ensure a finger doesn’t interfere with fan blade rotation, for example. This can be a problem in a variety of items, as we found out. In one instance we had an overhead furnace that had a big blower fan that was not a safety problem until we built a storage area just underneath it. The storage platform was high enough that the inadequate guard over the fan became a risk to somebody accidentally getting a hand through it.

Some everyday window fans have a relatively flimsy plastic face that can break, creating a space large enough to get a finger in. We had one of those.

The DOL also found an older mower with spacing too large on its guard and a motor grader that was missing its motor side guard—it got knocked off and didn’t get replaced.

Planning is another necessary tool for safety. The DOL asked about our Bloodborne Pathogens-Exposure Control Plan, Emergency Action Plan, Lockout Tagout Plan, Confined Space Plan, and Personal Protective Equipment (PPE) Hazard Assessment, to name a few.



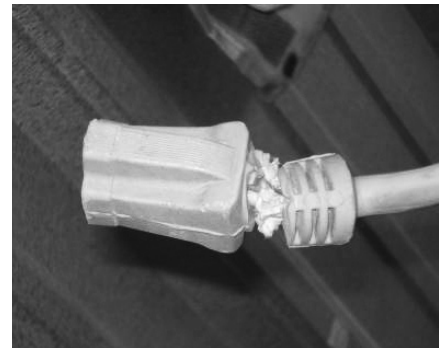
Photos courtesy of Riley County



At left, flimsy fan guards do not provide enough protection for stray fingers.

Above, an unlabeled container is a hazard. Is the liquid flammable?

At right, damaged cables or cords can subject someone handling them to electric shock.



How about **labeling**? Does your agency have unlabeled or inadequately labeled containers on your shelves? Instead of a label to identify the contents do you remove the lid and take a big “whiff?” This method is old school, I know—I grew up with it; but the DOL frowns on it.

For example, the inspectors noticed an unlabeled clear plastic jug with a brown substance in it and asked what it contained. Hmmm, is it bar oil? Fuel mix? It was too thin to be bar oil...whiff... it's fuel mix. (The DOL wasn't impressed.) We also had unlabeled 50 gallon fuel tanks in the back of our pickups. Was it diesel fuel? Unleaded? A propane tank on the side of our oil distributor needed a label as well.

Knowing what is in a container is important to aid health care professionals in case of accidental ingestion or inappropriate exposure. A label also aids emergency personnel when they work near a substance during an incident.

First aid kits and eye wash stations have items that have expiration dates on them. Creams wrapped in little foil packets, aerosols, and saline solutions all have expiration dates. The eye wash stations with the bottled fluids have expiration dates as well. Make sure you change them out.

Fire extinguishers need to be inspected monthly. Those tags on the fire extinguisher have space to write a date and initial when you inspect them. One DOL inspector stated that if fire extinguisher inspections are not being documented, then the inspections are probably not happening. (See the article in page 12 for more on fire extinguishers.)

During our last annual fire extinguisher inspection, we picked up a fire extinguisher and the hose fell off. Thankfully this didn't happen just prior to being used in a fire.

Proper storage of your PPEs is also something that

the DOL looks for. Ordinarily, face shields are hung on the equipment that require them. Unfortunately, though, face masks get dirty and scratched when left out. On our inspection day, we found a pair of safety glasses lying on the floor. I think the wind blew them off their perch when the overhead doors were open, but nevertheless...

One final inspection item: We had some mezzanines and overhead storage areas that had no **weight limit signs** posted. Getting that information was not a problem for the newer buildings because the load limits were written on the building plans. However, some of the older areas required bringing in an engineer to determine the weight limits.

In conclusion, safety is something we need to stress to our employees and it needs to be practiced 24/7. It includes considerations large and small. I hope this article will inspire your agency to look around to see how you can improve safety for your employees. You can invite the DOL to inspect your facility, too. It's free with their Safety Consultation Program and you will likely learn a lot. The DOL can be reached at (785) 296-4386. Another option would be to contact your insurance policy holder and see if they have any safety inspection options available to you.

At a recent conference I heard a speaker say that safety really started to make sense to him when he became a father. He related how an accident may have one in one million odds, but the problem is the one. Would he want his child practicing unsafe habits and become “the one?” No way. Have a safe 2012. ■

David Ball is the safety coordinator for Riley County Public Works.



Fire Safety at the Shop

By Anne Lowder

We recently heard from a road and bridge agency in Kansas that they had a fire next to its shop building that almost spread to the inside. “That would have been a disaster,” they said. Their shop, like yours, contains flammable chemicals and fuels and tanks that could turn a small fire into a serious incident. Luckily, agency staff were able to act fast and put out the fire. This article will review some of the sources of fire hazards in public works and what to do to help reduce the potential for a fire.



collection should be located away from the building. Trash dumpsters should be located so that a possible fire will not spread to the building.

Store and use chemicals with care.

Flammable and combustible liquids should be stored in accordance with National Fire Protection Association (NFPA) Regulation 30. Storage rooms should have a ventilation system and automatic sprinkler system. Flammable and combustible liquids should be kept in covered containers when not in use.

Some containers should be bonded and grounded to prevent creating sparks when liquids are transferred from one container to another. You only need to bond those containers that conduct electricity, such as those made from metal or special, conductive plastics. A wire with alligator clips can be used to connect one container to another (bonding) and one container to an underground water pipe or electrical ground (grounding). Spills should be cleaned up promptly and disposed of on a daily basis.

Maintain your vehicles. National Fire Protection Agency (NFPA) statistics show that 75 percent of highway vehicle fires resulted from mechanical malfunctions. Collisions or overturns caused only three percent of vehicle fires. What’s a good preventative strategy? Preventive maintenance.

Vehicle preventive maintenance does not just happen. Managers, operators, and mechanics must take ownership in the preventive maintenance cycle of inspection, service and repair of vehicles and equipment.

Here are some vehicle safety tips from AAA and the Federal Highway Administration:

- Watch for fluid leaks under vehicles, cracked or blistered hoses, or wiring that

is loose, has exposed metal or has cracked insulation. Have any of these conditions inspected and repaired as soon as possible.

- Be alert to changes in the way your vehicle sounds when running, or to a visible plume of exhaust coming from the tailpipe. A louder than usual exhaust tone, smoke coming from the tailpipe or a backfiring exhaust could mean problems or damage to the high-temperature exhaust and emission control system on the vehicle. Have vehicles inspected and repaired as soon as possible if exhaust or emission control problems are suspected.

Regularly check your electric service. Electrical service panels in the shop should be readily accessible, well maintained, and be without evidence of overheating (such as melted wires). All wiring insulation in outlet and junction boxes should be in good condition and not frayed or loose.

In case of fire

First, the shop should have fire detection and alarm systems installed, guided by your local fire code. The systems should be maintained, tested and inspected based on the manufacturer’s guidelines.

Second, employees should be trained on procedures using those systems as well as manually activating the fire alarms.

It is important that you train your staff to respond to each possible type of fire: electrical fires, chemical fires, general fires and vehicle fires. And staff will need the necessary equipment to battle fires: fire extinguishers. Fire extinguishers come in different sizes and different types to put out different classes of fire.

Types of fire extinguishers

Because the nature of each kind of fire is different, the fire extinguisher used on each kind of fire must be fit the need.

- **Type A** extinguishers are used on ordinary combustibles such as paper, wood, fabric, and other easily ignited materials.
- **Type B** extinguishers are used on flammable combustibles such as gasoline,

Fire hazards in the shop

Different types of hazards can be found in a public works shop, such as flammable materials, oil soaked rags, paper trash, and accumulations of corrugated boxes. Certain materials, such as paints, solvents, aerosols and other flammable or combustible materials, can cause intense fires or generate dense smoke and are easily ignited by matches, welder’s sparks, cigarettes or may even start from spontaneous combustion.

Fuels used in various pieces of equipment are also potential fire hazards. Examples of such equipment include: generators, snow removal equipment, grounds maintenance equipment, small internal combustion engines and motor vehicles. Fuels also include welding acetylene, stored liquid or gaseous fuels. These fuels or compressed gases can be a significant fire hazard and must be controlled.

Steps for reducing risk of fire

Clean up. To limit the fire potential, storage areas should be kept clean and orderly. Aisles providing access to fire exits should be clear. Service bays should be kept clean and should not be used to store combustible materials. Combustible waste materials placed outdoors for trash



solvents, and grease.

- **Type C** extinguishers are used on electrical fires.

Some extinguishes are designed to be multi-purpose, and most likely, the fire extinguisher for in your facility or your vehicle is rated Type A, B and C. This is a multipurpose dry chemical extinguisher. It is filled with the chemical monoammonium phosphate, a yellow powder that leaves a sticky residue.

Proper extinguisher placement in the shop

The Occupational Safety and Health Administration (OSHA) recommends placing fire extinguishers throughout the workplace and readily accessible in the event of a fire (OSHA, 29 CFR 1910.157(c)). Maintenance facilities must have at least a 10 B,C rated fire extinguisher placed every fifty feet and immediately outside certain storage areas (i.e. fuel or paint areas).

Most important: Be prepared

Fire extinguishers are only effective at the start of a fire. Within seconds, (most fire extinguishers complete their discharge in 8 to 12 seconds) fires will outstrip a 10- 20 ABC fire extinguishers dousing capacity. There is no time to read instructions or to be confused about how to hold the extinguisher and where to spray. For this reason, it is important that your staff participate in hands-on drills to become familiar with extinguishers and their use and know when to evacuate.

Fire safety planning

The Occupational Safety and Health Administration (OSHA) 29 CFR requires employers of more than 10 people to establish a written fire prevention

plan. OSHA standards also require employers to provide proper exits, fire-fighting equipment, and employee training to prevent fire deaths and injuries in the workplace.

The plan should educate and train employees on the preferred means of reporting fires and other emergencies, types of evacuations to be used in various emergency situations, the alarm system and fire extinguisher training. The plan should also detail emergency escape routes, accounting for all employees after an emergency evacuation has been completed and rescue and medical duties for those employees who are able to perform them.

One way to accomplish this is for your agency to incorporate fire drills into annual and new employee orientation trainings. Talk to your local fire department. Local fire departments often will hold fire extinguisher training at no cost or for the cost of refilling the extinguishers.

It is also important to make sure that all of your extinguishers are visible, clean, and fully charged. Fire extinguishers have a small gauge or a pressure-test pin. The arrow of the gauge is fully charged when in the green. There should also be a plastic tie holding the pin into the handle. If the gauge is not in the green or the plastic tie is not on the pin, the fire extinguisher is not usable.

It is also required by the NFPA and local fire codes that a fire safety inspection is to be completed on a yearly



Two indicators of an extinguisher's charge are the pressure gauge and the plastic tie holding the pin in the handle.



basis. The inspection must be completed by a licensed fire extinguisher company that (for government agencies) has been selected through a Request for Proposal process. Licensed fire extinguisher companies are also located in the yellow pages under "Fire Extinguishers."

Conclusion

Fire prevention in the shop begins with preventive maintenance, good housekeeping, and proper storage of equipment and materials. Complete fire prevention includes training as well as a having a detailed fire safety plan. Routine fire audits can help ensure that you are never surprised by any unknown fire violations. The steps you take to adequately prepare for an emergency can make all the difference.

For more information consult the sources for this article, listed below. Also read *Chemical Storage is a Matter of Safety and Common Sense*, a 2-page fact sheet. See page 14 for a description. ■



Sources:

- Bremerton, Washington Fire Department. "Using a Fire Extinguisher." Online video. 2010. November 3, 2011. <http://www.youtube.com/watch?v=ZCSms-jyOao>
- US Department of Labor, Occupational Safety and Health Administration. Portable Fire Regulations (CRF 29). Web. November 3, 2011. http://www.osha.gov/pls/oshaweb/searchresults.relevance?p_text=fire&rp_osha_filter=STANDARDS&rp_logger=1
- National Fire Protection Association Regulation 30 (NFPA). "Storage of Flammable and Combustible Liquids." 2012. Web. November 3, 2011. (<http://www.nfpa.org/aboutthecodes/aboutthecodes.asp?docnum=30>)
- National Fire Protection Association. Vehicle Safety Tips. Accessed November 3, 2011. <http://www.nfpa.org/itemDetail.asp?categoryID=1943&itemID=45941&URL=Safety%20Information/For%20consumers/Vehicle%20fires/Vehicle%20safety%20tips>.



WHAT'S NEW

By Lisa Harris

See download / ordering information on next page.

Worker Zone Safety Clearinghouse "Video Vault"

The streaming videos in this collection are viewable from the Web. Includes videos on setting up a work zone to minimize dangers. 2010.

Chemical Storage is a Matter of Safety and Common Sense

A two-page primer with safety tips for chemical storage in the shop. State Compensation Insurance Fund (California). 2010.

Hazard Checklists (in Spanish and English)

These checklists are useful for making inspections and identifying hazards in the workplace. There are many topics relevant to public works. State Compensation Insurance Fund (California). 2010.

How to Avoid Ergonomic Injuries in the Roadway Construction Industry

Tips for avoiding sprains and strains to the back, shoulders and wrists while staging work materials and equipment for roadway construction and maintenance, handling materials, and performing the work. Tech Transfer Newsletter, California T2 Program, Fall 2006.

CALENDAR

Visit our Web site for even more training calendar listings and to register for workshops. Go to <http://www.ksltap.org> and click on "View the LTAP Calendar."

■ TRAINING:

Webinar: Geosynthetic Reinforced Soil (GRS) Integrated Bridge System (IBS)
February 16 in Topeka and Wichita.

Workplace, Jobsite & Equipment Safety ▲L1
February 22 – Pratt
February 23 – Salina
February 24 – Topeka

Right-of-Way
February 27 – Topeka
February 28 – Salina
February 29 – Wichita

Culverts & Drainage ▲L1
March 6 – Dodge City
March 7 – Newton
March 8 – Manhattan
March 9 – Olathe

MUTCD for Technicians ▲L1
March 20 – Hutchinson
May 22 – Hays

Gravel Road Maintenance ▲L1
April 17 – Cimarron
April 18 – Great Bend
April 19 – El Dorado
April 20 – Seneca

Webinar: Flexibility in ROW
April 19 in Wichita and Topeka

■ Basic Surveying

April 25 – Topeka

■ Introduction to ArcGIS

June 13 & 14 – Lawrence

■ Webinar: In Lieu Fees/Mitigation Banking

June 21 in Wichita and Topeka

■ Webinar: Adaptive Signal Control Technologies (ASCT)

August 16 in Wichita and Topeka

■ UPCOMING MEETINGS:

■ Kansas County Highway Association and American Public Works Association (Kansas Chapter) Joint Meeting

May 9-11 in Newton
<http://kansas.apwa.net/>

■ MINK Local Roads Meeting

September 26-27, 2012
St. Joseph, MO
Call Lisa Harris at (785-864-2590) for more information.

For information on calendar items or to suggest a topic for an LTAP workshop, contact: Kristin Kelly, LTAP Training Coordinator, 785/864-2594, kbkelly@ku.edu.

▲L1 = KS Road Scholar Program Level 1 — Technical skills required course.

▲L2 = KS Road Scholar Program Level 2 — Supervisory skills courses are provided by the Kansas Association of Counties. Go to <http://www.kansascounties.org> and click on "Education Program."

▲L3-r = KS Road Scholar Program Level 3 — Master Road Scholar required course.

▲L3-e = KS Road Scholar Program Level 3 — Master Road Scholar elective course.



WEBINAR SERIES CONTINUES

The Federal Highway Administration (FHWA) is sponsoring a series of webinars as part of its Every Day Counts initiative. In Kansas, FHWA has enlisted the help of LTAP in hosting these webinars. Locations are Topeka and Wichita. Topics are **GRS Integrated Bridge System** (February 16), **Flexibility in Right-of-Way** (April 19), **In Lieu Fees/Mitigation Banking** (June 21), and **Adaptive Signal Control Technologies** (August 16). Contact Kristin Kelly at kbkelly@ku.edu for more information.



FREE ROAD & BRIDGE RESOURCES

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



TRAINING GUIDES & REPORTS

You are free to keep these unless otherwise noted.
Or you can download at the links provided.

Work Zone Safety Clearinghouse "Video Vault"

A collection of streaming videos on work zone safety. See description on page 14. <http://www.workzonesafety.org/video/>

Chemical Storage is a Matter of Safety and Common Sense

See description on page 14. <http://www.statefundca.com/safety/safetymeeting/SafetyMeetingArticle.aspx?ArticleID=16> or request hard copy.

Hazards Checklists (in Spanish and English)

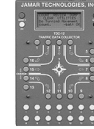
See description on page 14. <http://www.statefundca.com/safety/HazardChecklists.asp>.

How to Avoid Ergonomic Injuries in the Roadway Construction Industry

See description on page 14. <http://www.techtransfer.berkeley.edu/newsletter/06-4/ergo.php> or request hard copy.

Understanding the Material Safety Data Sheet

See description on page 3. University of Missouri Extension. <http://extension.missouri.edu/publications/DisplayPub.aspx?P=G1913> or request hard copy.



EQUIPMENT LOANS

We offer the following items for loan to local highway agencies. Contact mgivechi@ku.edu for counter boards and weaver@ku.edu for the Safety Edge shoe. There could be a waiting list for these items.

Safety Edge Paving Shoe. This Advant-Edge shoe attaches to a paver with a universal bracket, provided with the shoe.

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

Turning Movement Counter Board TDC-8, Jamar Technologies, Inc. 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.

Our resource catalog of free reports and training videos is searchable online. Visit <http://www.ksltap.org>. Click on the "Lending Library" to search the catalog.



REQUEST FORM

- send materials indicated address correction add to LTAP Newsletter mail list send Road Scholar Program brochure
 add to KS LTAP email discussion list

Name _____ Phone number _____

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*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.

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KANSAS LTAP

Let us at the Kansas LTAP help you find the answers to your transportation-related questions.

Kansas LTAP, 1530 W. 15th St. #2160, Lawrence, KS, 66045. Call 785/864-5658 (fax 785/864-3199) <http://www.ksltap.org>

The Kansas Local Technical Assistance Program (LTAP) is an educational, technology transfer and service program of the Kansas University Transportation Center (KUTC), under the umbrella of the KU Transportation Research Institute. Its purpose is to provide information to local government highway departments and their personnel and contractors by translating into understandable terms the latest technologies in the areas of roads, highways and bridges.

The *Kansas LTAP Newsletter* is published quarterly and is free to counties, cities, townships, tribal governments, road districts and others with transportation responsibilities. Editorial decisions are made by Kansas LTAP. 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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