Safety in Lightning Storms

Many of you work outside in heat, humidity, lightning and thunderstorms. According to the National Oceanic and Atmospheric Administration’s (NOAA) National Weather Service website, an average of 54 people in the United States are killed each year by lightning, and while lightning fatalities have decreased over the past 30 years, lightning continues to be one of the top three storm-related killers in the United States.

Being aware of potential risks and following recommended practices can help keep you safer during a lightning event and reduce your chances of being struck. The recommendations detailed below are from the NOAA National Weather Service and the National Lightning Safety Institute.

Recommendations

• **Plan ahead.** Check your local weather forecast and the forecast for the area in which you will be visiting or working. Monitor a portable weather radio during outdoor activities so you aren’t caught off-guard.

• **Get inside a safe building or safe vehicle.** This is the best option during a lightning storm. A safe building is a permanent structure that is fully enclosed, such as a school, home, office building, etc. This does not include carports, open garages, picnic shelters, pavilions, sheds, dugouts, and tents. A safe vehicle is a fully enclosed metal-topped vehicle, such as a van, truck, or hard-topped car.

Safety or Liability? It’s Your Call

A primer on basic temporary traffic control for maintenance supervisors.

By Lisa Harris

Much of the work of a city, county, or township road agency is routine maintenance. However, setting up a work zone for that work is anything but routine. It requires application of federal temporary traffic control standards, which can vary from work zone to work zone, and the ability to train your crews in how to be safe and also safeguard passing motorists. As the supervisor, you are responsible that your crew and passing traffic are well separated as the work is initiated and completed. This is a critical role you play in terms of safety and liability for your jurisdiction.

Continued on page 2
Safety during lightning storms  Continued from page 1

does not include riding mowers or open-cab construction equipment. If you are operating a vehicle like this during a lightning event, immediately seek shelter in a safe building or safe vehicle.

• If in a safe vehicle, be sure all vehicle windows are rolled up and your hands are placed on your lap. It is important that you not touch any metallic object that is referenced to the outside of the vehicle. This includes door and window handles, radio dials, radio microphones, gearshifts, steering wheels, and other inside-to-outside metal objects. This recommendation comes from the National Lightning Safety Institute (NLSI) based on reported incidents and injuries.

• If you are outside and unable to get inside, stay away from open fields and hilltops. Avoid tall objects such as trees; if in a wooded area, stay close to a lower stand of trees. Stay away from water or wet items. Avoid electrical fences, metal pipes, rails, and telephone poles. Put down any object that might conduct electricity, such as a rake or shovel.

• If you are outdoors with no nearby safe shelter, do not lie flat on the ground. Doing so increases your chance of being affected by potentially deadly ground current. One recommendation is to crouch down with your feet together and your hands over your ears.

• What should you do if you are operating heavy equipment and are caught in lightning? According to the NLSI, “backhoes, bulldozers, loaders, graders, scrapers, mowers, and other heavy equipment that employ an enclosed [roll-over protection system] (ROPS) are safe in nearby electrical storms. The operator should shut down the equipment, close the doors, and sit with hands in lap, waiting out the storm. Under no circumstances during close-by lightning should the operator attempt to step off the equipment to the ground in an attempt to find another shelter. Very dangerous step-voltage and touch-voltage situations are created when a “dual pathway to ground” is created. Lightning voltages will attempt to equalize themselves, and they may go through a person in order to do so.”

• What should you do if someone has been struck by lightning? There is a common misconception that if you touch a lightning victim you will be electrocuted. According to the NOAA National Weather Service, this is just a myth; the lightning victim does not carry an electrical charge. It is safe to touch the victim and administer first aid. Remember to call 911, and administer CPR or use an automatic external defibrillator if the person is unresponsive or not breathing.

For more information regarding lightning safety, visit the National Weather Service’s website at http://www.lightningsafety.noaa.gov or the National Lightning Safety Institute’s website at http://www.lightningsafety.com. Both of these sites have extensive information on this topic.

Source:

Safety or liability? It’s your call  Continued from page 1

On low volume roads and streets, some agencies in Kansas just close the road for the time they are working it, put up some barricades and a couple of warning signs (such as “ROAD CLOSED TODAY ONLY”) and then flaggers are not needed and they don’t have the risks related to working close to traffic. However, when this is not possible, motorists need clear guidance on how they should travel through the area, and that is accomplished through traffic control. This article will describe the basic tasks an agency must consider for setting up traffic control during maintenance operations, and will point you toward some helpful resources for more information.

Elements of traffic control for maintenance operations

The sidebar on page 3 lists the basics of traffic control “know how,” or the things you need to know how to do. Of course, this an extremely simplified list; there are many variables for setting up a work zone properly. Where can you learn those things? The following are some great resources.

Key publications

Manual on Uniform Traffic Control Devices (MUTCD). This document contains the federal standards. It is updated every few years; you need to use the version that is currently adopted in Kansas. At present, that is the 2009 edition with Revisions 1 and 2. To access that version, go to http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm.

Chapter 6 of the MUTCD covers temporary traffic control in general. Chapter 5 has additional language specifically for low volume roads, and says that a limited number of traffic control devices is often sufficient to communicate essential information on these roads. Chapter 5 suggests that,
Basic Temporary Traffic Control “Know How”

Work zone supervisors need to:

- **Know how** to set up traffic control devices for the type of project you are doing and the type of road conditions you are doing it on. For example, you will have a different set-up if you are chip sealing a low volume road than if you are doing pothole patching at a curve on a high volume road.

- **Know how** traffic devices should be placed to safeguard your workers as they place them.

- **Know how** to decide if flagging is needed, and ensure your flaggers are well trained.

- **Know how** to train employees in the construction area to stay clear of motorists and the agency’s own equipment.

- **Know how** to safely remove traffic control devices and open the road back up to traffic.

- **Know how** to safeguard worker health and safety with training, personal protection gear and frequent hydration.

in low volume situations, the focus be on devices that warn of conditions not normally encountered, prohibit unsafe movements, or provide minimal destination guidance.

If you find it necessary to deviate from the MUTCD in setting up temporary traffic control, the manual’s Section 1A.09 states the design should be developed using an engineering study or engineering judgment by a licensed engineer with experience in traffic control.

**Guidelines for Temporary Traffic Control.** This popular laminated “glove box guide” produced by FHWA has illustrations of different set-ups for work zones. This has been updated to the 2009 MUTCD. Make sure your agency has one or more copies of this. Order at the Kansas LTAP Lending Library at http://www.ksltap.org.


**KDOT handbooks for traffic engineering practices.** In 2005, KDOT produced traffic engineering handbooks for small cities and for low volume roads. Each has a chapter on temporary traffic control. The chapters are framed around questions often asked by local agencies about setting up work zones. These books have not been updated to comply with the current MUTCD. They are available on CD from Kansas LTAP.

A good website on traffic control

FHWA’s Office of Operations webpage on worker safety has a concise list of useful links to resources for setting up a work zone. http://www.ops.fhwa.dot.gov/wz/workersafety/

Webinars

The National Work Zone Safety Clearinghouse has free webinars on work zone safety for 24/7 viewing. One of particular interest is “Anatomy of a Work Zone: Safety and Liability Exposure in Improperly Prepared Work Zones,” describing an actual lawsuit involving a utility work zone on a low volume road, and lessons learned. This and other webinars are listed at http://www.workzonesafety.org/training/webinars/upcoming_webinars.

Face-to-face training

Kansas has three sources of face-to-face training re: work zones.

1) Traffic Assistance Services for Kansas, or TASK, provides training on using the MUTCD, among other traffic safety topics. See the TASK schedule at http://www.dce.k-state.edu/conf/task/.

2) ATSSA. The American Traffic Safety Services Association occasionally offers traffic control classes in our area. The next one, on traffic control design, is in Topeka, October 23-24, 2013. This is offered through ATSSA’s work zone grant from FHWA, and the class registration fee is a bargain at $25.00. For more information go to http://www.atssa.com/TrainingCertification/TrainingEventsStates.aspx?statecd=KS.

3) Kansas LTAP covers worker safety aspects of setting up work zones in its “Workplace, Jobsite and Equipment Safety” workshop. Call Kristin Kelly at (785) 864-2594 for more information.

In sum

Ultimately, your job in supervising a work zone is to get everyone home safely. It’s a complex and critically important job. There are many different ways to obtain the information you need, and some primary resources are listed here. If you have a question you can’t find the answer to, and you need individual assistance, give Tom Mulinazzi a call at Kansas LTAP. He’d be happy to help. His number is (785) 864-2928.
Watch Your Back! You Could Hit Someone

By Lisa Harris

Backover incidents are crashes that occur when a driver reverses into and injures or kills a non-occupant. Some backover incidents can be fatal; others can result in serious non-fatal injuries, such as amputations, compound and simple fractures, and crushing injuries.

An OSHA Request for Information on backover accidents, issued last year, included a description of the scope of the problem. In a search of its database for fatal accidents involving backover hazards, OSHA identified 358 fatal incidents in the United States over a 6-year period; 61 of these deaths involved dump trucks and 20 deaths involved garbage trucks.

Some interesting facts about this data:
- Eight of the persons on the ground who were struck were using cell phones at the time.
- Twenty-five of the victims were acting as spotters for the vehicles that backed over them.
- Highway work zones are of particular concern because workers routinely work in noisy conditions in close proximity to mobile equipment and construction vehicles. In fact, ARTBA reported that backing accidents statistically account for

Key Principles to Safer Backing

- Avoid backing up unless necessary; organize the work area to minimize backing.
- Park vehicles so the driver can leave in a forward motion, and choose a place free of congestion when possible.
- Implement and enforce procedures that minimize exposure of workers on foot to moving vehicles and equipment.
- Back up vehicles and equipment only in designated areas.
- Perform a walk-around to determine obstacles/hazards and site/vehicle clearances.
- Provide personal protective equipment and high-visibility clothing for workers, and require its use.
- Before driving, make sure mirrors are positioned properly.
- Ensure that drivers are in communication with workers who are on foot near the vehicle.
- Equip all vehicles and equipment with backup alarms and check them prior to operation to ensure they are in proper working condition.
- Keep vehicle windows down when backing or driving in the vicinity of pedestrian workers.
- Turn off radios, cell phones or other distracting devices when backing up, or if on foot in the vicinity of a backing vehicle.
- Designate a spotter to direct vehicle backing, and ensure that the driver and spotter agree on hand signals to use.
- Train the driver or operator to stop the vehicle if the spotter is out of view and can’t be clearly heard.
- Train workers on the specific duties they are to perform during backing maneuvers.
- Train workers to recognize equipment blind areas. Consult NIOSH’s Highway Work Zone Safety, Construction Vehicle List (http://www.cdc.gov/niosh/topics/highwayworkzones/BAD/). If the vehicle is not listed, estimate the vehicle’s blind zone: Sit in the driver’s seat, have another person walk away from the vehicle until the driver can see his/her feet, measure distance. For side and rear, repeat the process using side and rear mirrors. The area within the measured distance is the blind zone.
- Install after-market detection devices (e.g., cameras, radars, and ultrasonic devices) on construction equipment to monitor workers on foot in blind areas. [These devices can malfunction, however, so it is best to have a spotter as well. These devices can also give false positive readings that might lead the driver to disregard a warning.]

Sources:
approximately 50 percent of all fatalities involving construction equipment in roadway work zones. A high percentage of those involved a dump truck.

This article covers basic steps in backing-up safety and provides information on a new safety video produced by KDOT that will definitely make an impression on any road crew.

The sidebar on page 4 contains some safety principles for backing up a vehicle. Take time to review these. A theme in the safety practices is training, both for your drivers/operators and for employees who will be working near moving vehicles. Make backing-up safety a regular part of your safety training.

There’s no better way to illustrate the problem of backover accidents than to hear from the people who have been involved in them. A new safety awareness DVD by KDOT does just that. See the sidebar on this page.

A Youtube video we found contains backing up advice from field construction professionals. The video especially targets the experienced driver (https://www.youtube.com/watch?v=LIJYVe3RnM). One man said: “Look behind every single time you back up. The experienced driver gets sort of set in a pattern and that pattern can kill you, and it can kill someone else.” Another person, when talking about fork lifts, said: “Most of the time [operators] concentrate on the forks in front of them ...they look behind and nobody is there, and they don’t expect that to change, but it can. And that’s what we constantly need to be aware of.” That cautionary advice applies to operators of skid steer loaders and other mobile equipment, too.

For more information

The potential for a back over incident at a work zone, or anywhere else, is to be taken seriously. KDOT’s DVD shows that this problem can happen in Kansas as well as anywhere. Training in backing safety is now an especially high priority at KDOT.

Other videos on the topic are:

- Avoiding Runovers and Backovers. This was produced by ARTBA in 2009. It costs $200 for members and $250 for nonmembers. Call ARTBA at (202) 289-4434 for details.

- Backing. A 10-minute video produced by the Montana DOT. The production is dated (1980) but the advice is still relevant. It is available for loan from the Ohio LTAP Center at 614-466-2120. Free.

- Backing—You Owe it to Yourself. Produced by Pennsylvania DOT in 1983 and available from Kansas LTAP. Free.

- Dump Truck Operation Part 2. Produced with the Utah DOT in 1993 and available from Kansas LTAP. Free.

For Kansas LTAP videos, go to http://www.ksltap.org and click on Lending Library.

Also, consult the sources below for more information on backing. You can help your coworkers be safer out there.

Sources:

Training Resources for Your Department

By Kristin Kelly

Training is essential for job development in public works. When you participate in training opportunities, you are saying, “I want to improve my skills and knowledge and the reputation of my organization. My profession and field are constantly changing and I need to advance along with these changes.”

Numerous training resources are available to local agencies on topics ranging from worker safety to management skills. These opportunities are available in many formats, including traditional in-person classes, webinars, videos, and online classes.

Below is a sample of what is out there. See the sidebar at the bottom of this page for web pages for all of these resources.

American Public Works Association (APWA) – Emerging Leaders Academy: This year-long program provides training in leadership and management in public works. To participate, candidates must be professionals who have been working in the field of public works for seven years or less and those who have demonstrated an interest in advancing their careers within the profession.

APWA Donald C. Stone Leadership and Management Program: This comprehensive professional development program is available to any individual working in any public works discipline. The program has four public works tracks, Level 1: Supervisor; Level 2: Manager; Level 3: Executive; and Level 4: Leadership Fellow. You must meet the prerequisites to participate. Instruction is offered in a variety of formats. This is a self-paced program and fees apply. Upon completion of the program, graduates earn an APWA designation—a nationally-recognized credential.

ATSSA: The American Traffic Safety Services Association provides work zone safety training around the country. Most training done in Kansas is by invitation from a local government or contractor. A guaranteed number of participants must be met to hold a course. ATSSA is holding a traffic control design course in Topeka in October. See page 3 for more information.

FHWA. Federal-aid Essentials for Local Public Agencies: This is a new online resource designed to help local agency professionals navigate the Federal-aid Highway Program. This resource library consists of short videos and material to understand Federal-aid policies, procedures, and practices.

Gravel Roads Academy: Sponsored by the North American Salt Company, this is an extensive 2-day course on how to better maintain your gravel roads for superior stabilization, greater cost savings, and better air quality. The curriculum includes road design, road maintenance, road stabilization, program efficiency, and actual hands-on field training. The instructors are experts in the field and include staff from the Montana and South Dakota LTAP Centers.

Insurance companies: Sometimes a local agency’s insurance company will offer worker safety training. Call your insurer to find out.

Kansas Association of Counties (KAC): The KAC has a leadership academy for county commissioners and a training track for effective supervision skills. KAC is a partner in the KS Road Scholar Program.

Kansas DOT: Some training for KDOT employees is available to local agencies, if space is available. Courses are usually advertised through Kansas LTAP.

Kansas Local Technical Assistance Program (LTAP): Kansas LTAP offers affordable training on worker safety, roadway safety, agency management, and infrastructure maintenance. The majority of classes are offered each year in multiple locations across the state. LTAP is also a partner in the KS Road Scholar Program.

For More Information on Training

APWA Emerging Leaders Academy: http://www2.apwa.net/emergingleaders/
APWA Donald Stone Leadership and Management Program: http://www.apwa.net/donald-c-stone/management
ATSSA: http://www.atssa.com - Click on Education and then Course
Gravel Roads Academy: http://www.gravelroadacademy.com/
Kansas Association of Counties: http://www.kansascounties.org
Kansas LTAP: http://www.ksltap.org
Kansas Road Scholar Program: http://www.ksroadscholar.org
LTAP Centers around the country: http://www.ltap.org/centers/
National Work Zone Safety Information Clearinghouse: http://www.workzonesafety.org/training
OSHA Education Center, Barton County Community College: http://www.bartonsafety.com/schedules.html
OSHA Education Center, Metropolitan Community College: http://www.mcckc.edu/classes/continuinged/osha/overview.asp
TASK: http://www.dce.k-state.edu/dce/conf/task/index.html

Also refer to “KS LTAP Fact Sheet: Does your road & bridge department need training or technical assistance?” May 2009. http://www.kutc.ku.edu/pdffiles/LTAPFactSheet_2_UTCs.pdf
Kansas Road Scholar Program: This certificate program promotes a skilled workforce for Kansas public works and road and bridge departments. It is designed to increase the knowledge of road maintenance procedures and improve technical, supervisory, and managerial skills. See sidebars on pages 7 and 9 for more information and for testimonials from participants.

LTAP Centers around the country: Kansas LTAP is part of a nationwide network of primarily state-based centers—all with resources available to you. For example, the Illinois and Nebraska LTAP Centers have free streaming videos on a wide range of topics of interest to local agencies. Iowa’s LTAP Center has pre-packaged programs for safety meetings. The National LTAP Clearinghouse has a map with links to all the LTAP and TTAP (tribal) centers.

National Work Zone Safety Information Clearinghouse: This clearinghouse provides resources to the transportation construction industry and the general public to improve worker, motorist, and pedestrian safety in work zones. A wide range of training (using webinars, videos, and printed materials) is available nationwide.

OSHA Training Institute (OTI) Education Center: The US Department of Labor’s OTI Education Center offers technical courses on high hazards, occupational safety, and environmental compliance. Certified OSHA courses help you understand the standards and learn the skills to avoid costly fines and dangerous accidents. There are two OTIs in our area: the Metropolitan Community College Institute for Workforce Innovation in Kansas City, MO, and Barton County Community College in Great Bend, KS. These centers provide customized training and consultation. Short courses and online courses are available. Registration fees vary depending on course topic.

Traffic Assistance Services for Kansas (TASK): TASK offers workshops in roadway safety. Topics include federal regulations for traffic control, traffic engineering for technicians, geometric design for very low volume roads, and others. Some of the TASK courses are offered as part of the Kansas Road Scholar Program. TASK also offers on-site classes by agency request.

Kristin Kelly is the training and technology transfer coordinator for the KU Transportation Center. You can reach her at kkbelly@ku.edu or (785) 864-2594.

Congratulations to Recent Road Scholars

By Lisa Harris

During the last year, the following individuals who work for public works and road and bridge agencies in Kansas completed their Road Scholar requirements and received certificates:

Road Scholar Level 1 -- Technical Skills
City of McPherson — Gary Tillett
Allen County — Curt Drake, Jeff Ford, Gary Henderson, Mike Hough, Larry Kress, Donna LaRue, Jimmy Skaggs, Heath Womack
Butler County — Nathan Winter
Franklin County — Wayne Knight, Ryan Fine
Saline County — Dan Fisk, Doug Petty, Jeff White

Road Scholar Level 2 -- Supervisory Skills
Riley County — Rhonda Lund

Road Scholar Level 3 -- Executive Skills
Stafford County — Phillip Nusser

To date, Kansas has 350 Kansas Road Scholar certificate holders in Levels 1-3 combined, and counting. In addition to these, 93 individuals are currently working towards completion of a road scholar certificate.

To learn more about this staff development program, go to http://www.ksroadscholar.org. Also, be sure to turn to page 9 of this newsletter to read the testimonials from road scholar participants. They are the best ambassadors for the program. Congratulations to this year’s graduates!
John Z. Wetmore is a man with a mission: pedestrian safety. He spent his early childhood living on a street with sidewalks, and little did he know how much he appreciated those sidewalks until his family moved to a street that didn’t have them. Wetmore is a professional filmmaker, and he is using those skills to highlight what makes a good pedestrian environment, and what doesn’t.

Wetmore uses television and the internet to spread the word about how pedestrians interact with the built environment, interviewing engineers, planners and public officials. He has produced short videos, 180 of them to date, suitable for staff training or local TV spots. The video series is called “Perils for Pedestrians,” but it covers ways to build things right as well as some of the problems out there. The videos have an easy conversational style and excellent, detailed content.

Wetmore’s TV spots are shown in over 150 cities in the U.S. on public access stations. Check out which cities are showing his videos at http://www.pedestrians.org/tv.htm. In this article, we will describe a few of the TV spots and tell you how you can get more information.

**Intersection design in Binghamton, New York**

Perils for Pedestrians Episode 173 features a conversation between Wetmore and Erin Cavanaugh, an orientation and mobility specialist in Binghamton, NY. The topic centers on the design of an intersection at Holly and Court streets. At this particular intersection, the ingredients of pedestrian accessibility have been mixed to perfection. Cavanaugh provides in-depth information on the intersection and what makes it an especially good intersection for pedestrians with disabilities.

When reaching an intersection, Cavanaugh said that the first problem for mobility-challenged individuals can be the location of the signal button and pole. Poles located at the bottom of the ramp make it challenging for some users to stay out of the street due to the downward slope, especially for wheelchair-users. Poles are sometimes behind guardrails, which make it difficult for some users; the rail may block access to the pole and control buttons. The buttons need to be at a reachable height for both wheelchair users and pedestrians with visual impairments.

The origin ramp and destination ramp need to be aligned with one another and not force users to out of their line of travel when traveling from one side of the street to the next. The example intersection in Binghamton was clearly defined with white paint. The edges were also paved with brick, detectable by sight and feel.

For pedestrians with visual impairments, the intersection needs to have audible signals. The spacing of the truncated domes on pavement can be a peril for cane users if spaced too far apart. The condition of the pavement can also be an amenity or a peril. Pedestrians who use that intersection have told the city they appreciate the mitigation of perils.

**Sidewalk ordinance and good construction standards in Fayetteville, Arkansas**

Episode 61 takes a look at local sidewalks with the help of Chuck Rutherford, sidewalk administrator for the City of Fayetteville, Arkansas. On location in a Fayetteville neighborhood, Chuck explained to Wetmore that before 1996, sidewalks were able to be built to the individual lot, developer or builder’s standards. A sidewalk ordinance passed in 1996 requires new sidewalks to be constructed at a 2 percent elevation above the curb that continues through all driveways. Once this ordinance was enacted, some contractors, builders, and developers opposed the mandatory conformity, but they soon realized the benefits of connectivity for pedestrians and the bonus of lack of competition among developments in terms of competing sidewalk designs.
The new ordinance created an opportunity for education on the pedestrian safety aspects of the new design and construction standards for engineers and architects. For example, man-hole covers are not allowed to be put in the line of the sidewalk. Obstacles such as these can create perils for pedestrians; architects and engineers are being educated on why the new regulations include requirements on the location of light poles, man holes, and fire hydrants to promote pedestrian safety.

Conclusion

The TV episodes produced by Wetmore provide a high-quality, engaging and novel way to learn about pedestrian perils and solutions. They range from a pedestrian-accessibility plan in Lisbon, Spain to traffic-calming aspects of bioswales in Portland, Oregon. In each episode, Wetmore provides an engineering perspective while his interviewees are individuals with local experience and expertise in accessibility.

To report a peril or challenge—or a good solution to a peril or challenge—contact John Wetmore through a form on the Perils website: http://www.pedestrians.org/report.htm

You can bring Perils for Pedestrians to your public TV station by visiting http://www.pedestrians.org/volunteer.htm.

Finally, you and your staff can watch the videos for free online at the link below.

Source:


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Why Become a Road Scholar?

Are you looking for a reason to become a Kansas Road Scholar? Don’t look any further. Just read what some Road Scholar graduates have to say!

“The information and the courses in the Road Scholar Program are aligned with everything that we come in contact on a regular basis in Public Works. Whether it is what new products are on the market or the best way to get the job done, all are discussed thoroughly so we can do the best job possible with our resources to give the best public service we can offer. The Supervisory courses in the Level 2 program really give an in-depth look and insight on the best way to get the most out of our employees and how to be a real asset to our organization from a leadership standpoint. The courses and class discussions open your eyes to the right way to be a leader/mentor in the workings of public service. I feel the courses offered through the Road Scholar Program are a great investment in our people, and people in all levels in a department can benefit from taking all levels of the training (even through the top ranks of management) to get a good feel for all the different aspects of what we do in providing public service.”

— Ryan Fine, Heavy Equipment Operator 1, Franklin County Road and Bridge Dept.

“The Kansas Road Scholar Program is a real benefit to me and our county. The class materials are well organized and the little handy-dandy flip books come in handy when needing a quick reference whether it’s the do’s and don’ts of a road supervisor or needing to know the weights for materials used in paving and sealing. The instructors are not “talking heads” but rather explain things by real life experiences, e.g. Norm Bowers and Tom Mulinazzi. You gain an understanding about all of the funding that is out there, explained by KDOT Local Projects. The Kansas Road Scholar Program also lets you meet personnel from other counties and learn how they do things in their counties.”

— Darren Williams, Assistant County Engineer, Barton County Road and Bridge Dept.

“The Kansas Road Scholar Program has been a very valuable tool for the City of Burlington’s street department. It is very affordable and provides all of the employees a chance to better understand the functions of public works from differing perspectives. I personally have been able to go through the complete program and have acquired my Level 3 certificate. Taking Road Scholar classes is a part of each employees annual work plan in the department, and I have seen the value that it provides with more of a buy-in from the employees. I would highly recommend this program to any city or county personnel that can attend. You will gain knowledge not only from the program but also from your peers. Check it out; you really have nothing to lose, and much to gain!”

— Doug Mast, Street Superintendent, City of Burlington Public Works

The Kansas Road Scholar Program is a professional and skills development program of the Kansas County Highway Association and the American Public Works Association Kansas Chapter. The classes are designed to be affordable for local agencies in Kansas. Learn more at http://www.ksroadscholar.org.
When it Comes to Mowing, Be Safe Out There

By Lisa Harris

Mowing controls vegetation on rights-of-way and is very important to roadway safety. It keeps an area clear beyond the road shoulders for better driver sight distance. Mowing also maintains the visibility of post-mounted delineators and hazard markers that high grass can obscure. More-labor-intensive trimming may be needed to supplement mowing in places mowers can’t reach, such as the grass immediately around delineators and markers.

Trimming branches and working with adjacent landowners to control roadside vegetation also help maintain driver sight distance. These, along with a consistent mowing program, vegetation from obscuring driveways, intersections, and even curves in the road from the driver.

Traffic control for mowing

Mowing is a moving operation that takes place on and off the roadway, and therefore it requires different traffic control than other maintenance operations. The most important thing to remember is to make the mower unit highly visible to drivers. That way drivers will be alert to you and be able to avoid any potential collisions.

Warning signs such as MOWING AHEAD, ROAD WORK AHEAD, and similar signs may be placed along the road. The MOWING AHEAD sign is preferred. The sign is to be used in advance of mowing operations on the right of way. Place it on the shoulder so the approaching driver can read the message easily. As work progresses, move the signs so they are one to two miles between the sign and the actual mowing work.

Mount the sign on a sturdy portable support that will not be knocked over or blown down easily. Cover or remove the sign during the lunch break or any other times when work is not in progress. Do not cover or remove the signs if you have stopped mowing to repair or adjust equipment; the warning to drivers is important as they pass by your equipment.

For more information

Kansas LTAP has free resources on mowing in its lending library, including training on DVD. Go to http://www.ksltap.org, click on the Lending Library, and search for “mowing” in the key words section.

We found a good, detailed handbook on mowing from the Nebraska Department of Roads. Turn to page 14 to learn more.

Finally, check out the mowing “do’s and don’ts” on the following page. They contain basic and practical advice for being safe out there.

Make the Mower Visible

Be sure to:
- Operate rotating yellow beacons on mower tractors.
- Install slow-moving-vehicle signs on all mower tractors.
- Install yellow flasher lights on roll bars or the top of tractor cabs and operate these at all times.
- Install an orange flag or pennant on a whip to show the location of the tractor in high grass or over the edge of slopes.
- Operate the tractor with headlights on at all times.

Why Mow?

Road and street maintenance workers do three general types of mowing. In order of importance, these include:

Safety mowing. Makes sure signs and other traffic control devices, guardrails, and other safety features can be seen. Provides good sight distance for drivers approaching intersections, driving along curves, and approaching interchanges.

Transition mowing. Makes a smooth change from a narrow mowed width to a wide mowed width when different widths of right-of-way are mowed.

Contour or selective mowing. Makes a natural blending of the maintained roadside with native or planted growth. Shows off landscaping or wildflower areas or dresses up an interchange entrance to an urban area.
Withhold mowing during drought conditions. Mowing is part of a roadside maintenance plan to increase safety on the roadway while retaining vegetation to control runoff and ruts. Mowing during a drought can damage your desirable roadside vegetation. Plants are stimulated to grow when they are mowed, and if they don’t have water for growing, the plants will be stressed. If you mow during an extended drought, you may lose a lot of desirable plants.

Sources:
Shift Gears, Not Loads: Secure Your Loads  
By Lisa Harris and Kirk Raymond

Improperly secured cargo loads can shift and fall off vehicles, sometimes leading to disastrous results. In 2009 in St. Louis, two binders failed that were securing a bulldozer on a flatbed truck, sending the machinery into an oncoming vehicle and ending two women’s lives. The driver was found accountable for two counts of involuntary manslaughter due to an inadequate securement of the bulldozer. The loss of life in St. Louis was a result of the driver’s lack of education and negligence. A similar incident happened about four years ago near Lawrence, KS, when a backhoe fell off a truck on Kansas Highway 10 and killed a woman in the vehicle behind.

Public works departments routinely move cargo such as aggregate, sand, pipe, small vehicles, heavy equipment, signs, etc. This article seeks to inform readers about cargo securement regulations at the state and federal levels, what they cover in general, why they are important to your agency, and where to go for more information and training.

Kansas regulation

Kansas law requires proper securement of loads on all vehicles. See sidebar on next page on K.S.A. 8-1906 and how it pertains to your vehicles.

The state regulation requires load securement, but it does not provide information on how to attain it. What methods can you use to secure a load? How do you know if you have used the right equipment? How do you know if you have used enough tie-downs for your load? For answers to these questions, start by referring to the cargo securement regulations and guidance set out by the Federal Motor Carrier Safety Administration (FMCSA).

Federal regulations

FMSCA cargo securement regulations apply to interstate transportation. They contain securement requirements based on deceleration and acceleration thresholds, and specify the number of cargo securement devices to be used, what types to use, and how they should be attached.

Local governments are exempt from FMCSA interstate regulations. However, if your jurisdiction is ever sued for an incident involving improper securement, it’s a good bet the attorney for the victim will cite FMCSA’s North American Cargo Securement Standard as containing reasonable methods to attain proper securement. If you don’t use FMCSA standards, you had better have another justification for your methods that will stand up in court.

Good practices in securement

The following are adapted from the FMCSA Driver Handbook on Cargo Securement. See the Resources section on page 13 for a link to this document.

Do not transport the cargo until it is verified that:

• The vehicle’s cargo is properly distributed and adequately secured.
• The vehicle’s structure and equipment are secured, including the tailgate, doors, tarps, spare tire, other equipment used in the vehicle’s operation, and any cargo securing equipment.
• The cargo or any other object does not:
  – Obscure the driver’s view ahead or to the right or left.
  – Interfere with the movement of the driver’s arms or legs.
  – Prevent the driver’s free and ready access to accessories required for emergencies. OR
  – Prevent the free and ready exit of any person from the vehicle’s cab or driver’s compartment.

There is no tarp law in Kansas, but the regulation says that the cargo must stay in the vehicle.”
—Mike Hoeme

How well must cargo be secured? Cargo must be secured so that it does not leak, spill, blow off the vehicle, fall from the vehicle, fall through the vehicle, otherwise become dislodged from the vehicle, or shift upon or within the vehicle to such an extent that the vehicle’s stability or maneuverability is adversely affected.

What securement devices should I use? Cargo securement devices must be capable of withstandning the forces associated with deceleration, acceleration, backing or
FMCSA guidance has three conditions a driver should be sure are met before transporting any cargo:

**Condition 1:** Cargo is fully contained by structures of adequate strength.
- Cargo cannot shift or tip
- Cargo is restrained against horizontal movement by vehicle structure or by other cargo. Horizontal movement includes forward, rearward, and side to side.

**Condition 2:** Cargo is immobilized by structures of adequate strength or a combination of structure, blocking, and bracing to prevent shifting or tipping.

**Condition 3:** To prevent shifting or tipping, cargo is immobilized or secured on or within a vehicle by tie-downs along with:
- Blocking
- Friction mats
- Other cargo
- Void fillers
- Combination of these

Make sure the size of chain and number of tie downs are adequate for the aggregate weight, and that the securement devices are being used correctly to achieve the above conditions.

The Kansas Highway Patrol's Troop I has officers stationed around the state who investigate crashes involving interstate-regulated vehicles carrying loads. They also provide free training on FMCSA regulations, in partnership with the FMCSA. Their training typically involves a classroom presentation and a walk-around using actual vehicles and trailers. Call Captain Chris Turner for more information at (785) 296-7189.

The Kansas Corporation Commission also offers training for free at about seven locations around the state each month. See their calendar of upcoming presentations at http://www.kcc.state.ks.us/trans/safety_meetings.htm. They can also tailor the training to the types of cargo and materials your agency and contractors typically transport. They will either send a PowerPoint presentation for you to show in-house, or they will come to your agency to give the training in person. Call Mike Hoeme (pronounced Hay-mee), transportation director, at (785) 271-3333 or Gary Davenport, deputy transportation director, at (785) 271-3151. Training on securement “is what we’re here for,” said Hoeme, and they are glad to help your agency learn what to do and how to keep your roads safer from falling debris, or worse.

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**K.S.A 8-1906** regulates the securement of loads. Some sections apply to all vehicles and some to vehicles carrying livestock. The sections that apply to your agency are:

- No vehicle shall be driven or moved on any highway unless such vehicle is so constructed or loaded as to prevent any of its load from dropping, sifting, leaking or otherwise escaping therefrom, except that: This section shall not prohibit the necessary spreading of any substance in highway maintenance or construction operations;

  — and —

- No person shall operate on any highway any vehicle with any load unless such load and any covering thereon is securely fastened so as to prevent the covering of load from becoming loose, detached or in any manner a hazard to other users of the highway.

The full version of K.S.A. 8-1906 is at http://kansasstatutes.lesterama.org/Chapter_8/Article_19/8-1906.html

lateral movement. Tarps are not required in Kansas, but are often necessary to comply with the regulation that all cargo must stay in the vehicle.

There are many types of tie-downs, including chains of different grades and alloys, that can be used for direct tie-down. An article can also be secured indirectly by increasing the pressure on it with another article or articles. To learn how the working load limit of a tie-down is determined, go to http://www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/fmcsrruletext.aspx?reg=393.108.

Also note: After unloading a load from a low-boy trailer, make sure the trailer is free of mud and other debris and that tie-downs are securely stored.

**Resources**

Visit the websites listed in the Sources below to increase your knowledge of cargo securement practices. Of special note is FMCSA’s driver’s handbook that contains photographs of proper securement of different types of loads. There are brief sections in the handbook on securing concrete pipe, heavy machinery, logs, and boulders.

**Get your people trained**

This article just touches the surface of this topic, and even the FMCSA materials mentioned here don’t give you all you need to know about securing some of the items you typically transport. Training on cargo securement is a must, and luckily, in Kansas it is readily available.

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**Sources:**

- Phone Interview: Mike Hoeme, May 24, 2013.

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**MORE**

By Lisa Harris

See download / ordering information on next page.

**Highway Mowing Guidelines**

This is a guide developed for Nebraska but is useful for other states. Section IV provides illustrations of how to mow in different scenarios with slopes, driveways and intersections. 14 pages. Nebraska Department of Roads. 2008.

**Vehicle Safety: Avoid Backing Crashes (Poster)**

A good poster for your shop with basic tips for backing-up safety. Includes a reminder that every backing accident is preventable. Iowa LTAP.

**Toolbox for Kansas Local Roads Officials**

Designed as a one-stop resource with basic information needed by Kansas local road officials. Includes useful tables. KDOT and KUTC, 2013. 80 pages.

**Economic Impact of Closing Low-Volume Rural Bridges**

Compares the cost of replacing and/or repairing a rural low volume bridge with closing the same bridge and finding the change in vehicle operating cost based on the driver detour. KDOT and KUTC. 2013. 4 pages.

**Field Guide for Rural Roads**

Update to a popular LTAP field guide. Conforms to the 2009 MUTCD. Kansas LTAP, 2013. $4.00 per copy.

**COMING IN AUGUST:** Advanced GIS Workshop

This two-day advanced course focuses on hands-on experience with ArcGIS 10.1 software. Topics will include: working with LIDAR elevation data, advanced editing, linear referencing, making graphs, working with gridded data sets, delineating watersheds, using cut/fill, using the command line, and working with file-based geodatabases. Geared toward users who have received introductory training in ArcGIS and/or those who have developed some familiarity with the software. See above for dates and location.

| TRAINING: | Basics in Budgeting, Finance & Reporting – ▲L3  
2013.... |  
| | |  
| | Traffic Incident Management Training: Helping to Get Your Partners Trained |  
| | EDC Exchange Webinar June 19 (1:00 pm – 3:00 pm) Location participation in Topeka and Wichita |  
| | Overview of Human Resource Management – ▲L3  
July 11 in Junction City |  
| | Coaching & Positive Discipline for Effective Supervision – ▲L2  
July 16 in Manhattan  
July 25 in Hutchinson |  
| | Advanced ArcGIS |  
| | August 14-15, 2013 in Lawrence |  
| | Fundamentals of Supervision – ▲L2  
August 21 in El Dorado  
August 27 in Topeka |  
| | Fundamentals of Supervision – ▲L2  
August 21 in El Dorado  
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| | Economic Impact of Closing Low-Volume Rural Bridges |  
| | Vehicle Safety: Avoid Backing Crashes (Poster) |  
| | Toolbox for Kansas Local Roads Officials |  
| | Economic Impact of Closing Low-Volume Rural Bridges |  
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| | 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 = KS Road Scholar Program Level 3 — Master Road Scholar required course. |  
| | ▲L3-e = KS Road Scholar Program Level 3 — Master Road Scholar elective course. |  
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Visit our website for even more training calendar listings and to register for workshops. Go to http://www.ksltap.org and click on “View the LTAP Calendar.”
FREE ROAD & BRIDGE RESOURCES

Check off your selections, fill in the bottom portion, and return this form to:
Kansas LTAP Materials Request, 1536 W. 15th St., M2SEC Building, Room G520, 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.

Highway Mowing Guidelines

Vehicle Safety: Avoid Backing Crashes (Poster)
Iowa LTAP Poster. Download at http://www.iowaltap.iastate.edu/documents/circuit-rider/vehicle_safety_poster.pdf or ❑ request photocopied hard copy

Toolbox for Kansas Local Road Officials.

Economic Impact of Closing Low-Volume Rural Bridges

Field Guide for Rural Roads
See description on page 14. Kansas LTAP. $4.00 per copy. Send check payable to Kansas LTAP for your order or download at http://www2.ku.edu/~kutc/pdffiles/FieldGuide2013-Final.pdf

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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.

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 library of free reports and training videos is searchable online. Visit http://www.ksltap.org. Click on the “Lending Library” to search the catalog and place your order.
KANSAS LTAP

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

Kansas LTAP, 1536 W. 15th St., M2SEC Bldg. Room G520, Lawrence, KS, 66045    Call 785.864.5658    Fax 785.864.3199    http://www.ksitap.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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