

KUTC Newsletter

Winter 2000

A Local Technical Assistance Program (LTAP) of The University of Kansas Transportation Center
In cooperation with Kansas Department of Transportation and Federal Highway Administration

An issue dedicated to safety and liability concerns

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Is Professional Opinion Confidential and Privileged Information?



Tony Decoo and fellow highway professionals responded to a consulting engineer's call for references on a contractor. Under the Freedom of Information Act, their identities and opinions were made public. Here is Tony's account.

Tony Decoo, C.E.T., is Construction Manager for the County of Oxford, Ontario, Canada, and Second Vice President, Ontario Good Roads Association.

It was spring 1998 when a consulting engineer asked for my opinion on a contractor, who was the low bidder for a contract in a small rural Ontario municipality.

My recommendation was less than satisfactory. So were the recommendations of other professionals—municipal, provincial, and private. Consequently, the contract was awarded to the second bidder.

A councillor in the same municipality then asked the consultant for the names of those who had responded to the consultant's request for recommendations. This information was denied on the basis of privilege.

The councillor then filed a request for this information under the Freedom of Information and Protection of Privacy Act (FOI Act).

The consultant gave the names to the municipal clerk, but this information was

not released to the councillor who had made the request.

The clerk then notified the persons involved that a request had been made under the FOI Act for release of information, and that if, in our opinion, this information should not be made public, a written submission should be made. A copy of the relevant sections of the FOI Act were enclosed.

So written submissions were made to the clerk referring to the appropriate sections of the Act. This information was made

“This is scary. It's getting so a person can't even offer an opinion on something anymore.”—Tom Mulinazzi,

University of Kansas

available to me by the FOI coordinator in my municipality.

With these submissions in hand, the clerk wrote back denying access to the record.

Three months later, I received a letter from the Information and Privacy Commissioner of Ontario, saying that an

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Researchers Model Safety Effects of Converting a Rural Road from Two Lanes to Four Lanes

... by Katie Jensen

A typical scene in any big city is a traffic jam...stop-and-go traffic, drivers impatient and frustrated. Accidents often occur. Heavy traffic is not unique to big cities, however; it can also be found on rural roads. Many of these roads were built for less traffic, and, unlike thoroughfares in larger cities, do not

The results indicated that the conversion from a two-lane to a four-lane divided highway would result in a crash per kilometer reduction of between 40 and 60 percent.

have the benefit of multiple lanes.

There are a few options to fight this kind of congestion problem: add short sections of passing lanes to reduce traffic, convert the two-lane road to four-lane, or leave the road as it is, with slow-moving traffic.

The Highway Safety Information Systems (HSIS) recently published a summary report on the safety effects of the conversion of rural two-lane roadways to four-lane roadways. HSIS is a multi-state safety data base that contains accident, roadway inventory, and traffic volume data.

HSIS staff felt this was a timely subject to research due to the increase of traffic on rural roadways in many states. The research was conducted at the North Carolina Highway Safety Research Center.

Data collected from four states

The goal of the researchers was to develop a model that would determine the safety effects of changing a two-lane roadway to a four-lane divided highway. They first gathered information from databases in four different states—California,

Minnesota, North Carolina, and Washington. This data included the crash rates of two-lane roadways and four-lane roadways.

Model developed due to current lack of conversion data

The data was compared to form an equation model that determined the crash rate per kilometer difference between these road classes. Ideally, the

researchers wanted to use actual “before” and “after” figures on road conversions. Since no such data exists, they instead used a cross-sectional model. They compared the “best” two-lane typical section, meaning a roadway with the widest lanes and shoulders, to the “worst” four-lane typical divided highway with narrow shoulders.

This methodology required some assumptions on the part of the researchers. For instance, the roadways that were compared were deemed “typical” according to the AASHTO’s *A Policy on Geometric Design of Highways and Streets*, as well as a review of state highway design standards from two different states and cross-tabulations of surface width, shoulder width, and median width for state system mileage in the four study states. Only roadways that were longer than .16 kilometers were used in the study. The results could also be biased due to driveway-related crashes, which could not be determined from the data used.

With these factors in mind, the research team used the models to esti-

mate the safety effects of two-to-four-lane conversions within each state, and then compared these results across all of the states.

Results show lower crash rate

The results indicated that conversion from a two-lane to a four-lane divided road would result in a crash per kilometer reduction of 40 to 60 percent. The percentage varied from state to state. Researchers were unsure of why there was such variation between states, but concluded that it might reflect unmeasured differences in the roadway classes between the states.

Due to the lack of specific data to make a “before” and “after” model of highway conversion crash rates, the research team admits that the analysis is still up for debate. However, the model that was used to determine the crash rates can still be helpful to the highway engineer.

Future work in store

In the future, the researchers hope to verify undivided four-lane results with data from additional states, acquire more information on the effects of driveways on two and four-lane crash rates, expand the outcome variable of the equation to include crash severity, and verify all results through before-and-after studies of actual road conversions from two to four lanes.

The full report of this project with more details on the model is being published in an upcoming *Transportation Research Board Record*.

Source: “Safety Effects of the Conversion of Rural Two-Lane Roadways to Four-Lane Roadways,” *HSIS Summary Report*, FHWA-RD-99-206, November 1999. ■

New Guide on Roundabouts Soon to be Published

... by Joe Bared, FHWA

A comprehensive informational guide for roundabouts is about to be published. The report, *Roundabouts: An Information Guide*, covers all aspects of the practice of installing a roundabout, from planning to landscaping.

Objectives of the guide are both educational and prescriptive. The guide provides background information on roundabouts such as definitions and characteristics of safety and traffic operations issues. The bulk of the safety and operational benefits are based on studies conducted in Europe and Australia. It also includes information about all roadway users—automobile drivers, bicyclists, and pedestrians—with equal attention.

The guide is prescriptive in that it includes all pertinent policies and criteria by the American Association of State Highway and Transportation Officials (AASHTO), in addition to acceptable international practices. Researchers extensively and critically

reviewed European and Australian practices and research publications to combine and create the best recommendations. Although guidelines and practices may vary from one country to another, a certain consensus or trend is common to most countries. When researchers could not develop a convincing recommendation, the decision was left to the discretion of the highway planners and engineers.

Safety benefits documented

Well-designed roundabouts have considerable safety benefits. They reduce the number of potential traffic conflicts and reduce drivers' speed. Based on studies from other countries and the United States, there are 40 to 50 percent fewer injuries or fatal crashes reported in roundabouts than in conventional stop-controlled or signalized intersections. The safest roundabouts are those with single-lane entries.

Highway planners and designers can learn from these studies and work to reduce crash records at conventional intersections in the United States.

Twenty to 25 percent of fatalities and about 35 to 45 percent of crashes involving injury occur at conventional intersections.

About 100 roundabout sites have been built in the United States and roughly 150 sites are under design or construction. In comparison, the United Kingdom has built approximately 8,000 and France has 17,000 sites. Other countries, including Australia, Germany and the Netherlands, have also constructed numerous roundabouts.

Roundabouts: An Informational Guide (FHWA-RD-00-067) will be published on FHWA's Turner-Fairbank Highway Research Center website at www.tfhrc.gov. You can order a copy of the report in advance by sending a fax to the FHWA Report Center at 301/577-1421 (phone is 301/577-0818), or send an e-mail message to marl.green@fhwa.dot.gov.

Reprinted from *Research & Technology Transporter*, March 2000 issue, FHWA. ■

Is Professional Opinion Confidential and Privileged Information?, *continued from page 1*

appeal (MA-9801941-1) had been filed and that the matter was under inquiry. I was asked to once again make written representation, this time to the commissioner. A notice of inquiry was enclosed, summarizing the facts and issues under appeal.

My municipality's FOI coordinator outlined in writing the need for privacy and confidentiality. The coordinator explained this was important to municipalities and consultants in the selection of good contractors.

The commissioner was informed that the consultant's request for recommendation as well as the recommendations received, were verbal and that there was no written record of

recommendations.

The information I gave was in confidence and assumed to be privileged. And the information that the consultant had kept as confidential, and which he released only to the clerk of the municipality, was to be kept confidential.

In December 1998, I received a notice from the Information and Privacy Commissioner of Ontario that the appeal had been completed. Enclosed was a copy of the commissioner's order (MO-1176) for the release of the information within a three-day period. The commissioner reserved the right to require the municipality to provide to the com-

missioner a copy of the record which was to be disclosed to the applicant. Conclusion: The information that professionals give willingly to other professionals can become public knowledge and may expose both of them and their employers to liability risks.

This is a precedent-setting case. As a result of it, requests for recommendations will receive, at best, guarded responses, denying smaller municipalities the benefits of lessons learned by other municipalities and consultants.

Reprinted from Ontario Good Roads Association newsletter, *Municipal Routes*, July/August 1999, Issue 61. ■

New Videos on Liability Available from Kansas LTAP

... by Kathryn Jensen



“Local Government on Trial”
Part I—“The Background,” 41 minutes. Part II—“The Trial,” 90 minutes, by Pennsylvania Local Roads Program. These two videos are designed to be viewed together. The first video gives background information on a case that occurred in a Pennsylvania township in 1988. Civil engineering professors play the roles of plaintiff and defendant, and actual lawyers play the roles of the attorneys.

A mock judge describes the case. A road in a Pennsylvania township was scheduled to be repaved by a contractor and the township. The contractor was to repave the existing 18 ft.-wide road to 22 ft. wide, and the township was to stabilize the shoulders and bring them up to grade for repaving. At the end of the summer the township had not completed their work, and the contractor was worried about having to pay a penalty for paving late. So the contractor and the township agreed for the contractor to pave the road at the existing width without shoulder prep. After paving, the dropoffs at the shoulders ranged up to five inches.

Three days after paving, an individual was driving his truck along the

newly repaved road. He attempted to pass three vehicles at once. While doing this, his left tires left the road and entered the dropoff. Overcorrecting himself, he steered to the other side and crashed into a utility pole. The accident was fatal.

The driver’s family sued the contractor and the township. They charged that because the dropoff did not have proper signage, both entities were at fault.

The second video is the mock trial, modeled after the actual events. First, the town supervisor, a defendant in the case, takes the stand. The district attorney gathers information from him and learns that the town supervisor was in charge of the police department and had no background in road maintenance. He was only

called to inspect the site because all of the other township officials were out of town.

Then an expert witness is called to the stand to declare that inappropriate signage was the cause of the accident. The defense refutes this by saying that the town supervisor acted responsibly in his decisions, and that the driver was going 15 miles over the speed limit at the time of the accident.

Who was negligent? The moderator of the video asks the viewers to review the facts and decide for themselves who was at fault, then return to the video to see how the Pennsylvania court ruled.

These two videos are not only entertaining re-enactments, but educational for employees who need to know the logistics of a tort liability case.

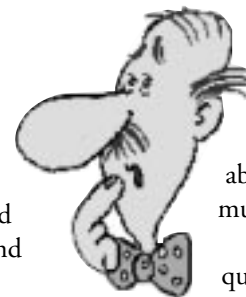
“How To Give A Deposition,” by Pennsylvania DOT, 17 minutes. This video gives some general guidelines and advice on how to behave at a deposition. This advice is conveyed

Help for Understanding Environmental Regulations

Industry and small businesses face many challenges, one of which is understanding and complying with environmental regulations. The online Transportation Environmental Resource Center (TERC), also known as Transource, at <http://www.transource.org>, was created to provide timely and accessible environmental news and environmental compliance and related business information to industry, small businesses, and assistance providers.

The center is operated through the collaborative effort of industry,

universities, environmental groups, and government. Access the TERC to help you or your staff identify applicable federal regulations and compliance tips, find out about news, and much more.



If you have any questions or suggestions about this program, feel free to contact Virginia Lathrop at the Environmental Protection Agency at: (202) 564-7057.

through a reenactment of a typical deposition. Attorneys are seated around a table at a conference room, rather than in a courtroom, and they ask questions in a conversational tone. However, as the video points out, this is not a conversation, but a time when the lawyers are gathering information and deciding on how well the witness would answer questions in an actual court setting.

It is for these reasons that it is important to follow some simple interviewing guidelines when answering questions at a deposition. The video gives general advice, such as answering questions calmly, simply, and truthfully. It also makes note of some common tactics lawyers use to spin information, such as asking loaded, compound, or broad questions.

This video is good for anyone in public works who may someday have to answer questions at a deposition. The video is also a good tool for anyone who must give an interview to a court or to the press. (Note: This video is a different production than PA DOT's "The Deposition.")

"Torts Are Everybody's Business,"

Pennsylvania DOT, 5 minutes. This short video acts as a reminder that regardless of a person's position in a public works agency, they should still be aware of tort liability. For instance, a receptionist in a public works office may have to provide information to attorneys on a case and should also know what kinds of information to keep confidential to the public. Those involved in design or maintenance departments should be aware that a departure from a design standard could lead to a tort liability lawsuit if the reasons are not documented. Everyone who works in a public office should watch for hazards on highways and alert the proper entities to avoid tort cases. This video acts as a precursor to the mock trial videos reviewed above.

To borrow any of these videos, turn to page 15. ■

Use Your Brain When You Use Your Brawn

Knowing factors that can lead to physical strain on the job can help you avoid injuries.

... by Kelley Emmett-Plunk

You're on the job, filling a pothole with a shovel. You are accustomed to this work—you've grown used to the traffic whizzing by and even the nagging

or those who do repeated lifting are at increased risk of developing RMI problems.

Muscle strain and backache can also be work-related. Over eight million cases of backache are reported annually. Backaches and muscle strain

Backache and muscle strain are second to flu as a cause of lost work time in the the United States.

pain that occasionally shoots through your upper arms and lower back after repeatedly lifting your shovel. And, because you take the pain in stride, being "part of the job," you probably don't think about how safe your working environment really is. A work-related injury may be subtle; it is not always a medical emergency.

Physical problems at work

Some workers don't stop to consider potential physical problems they face at work. They shrug off the aching wrist and the twinge of tension in their necks or backs as just a bit of stress or the result of standing or sitting in the same position for long periods of time. They don't necessarily see themselves as "injured" due to work, or think about ways they could work differently to avoid those problems.

The two main physical problems experienced in the workplace are Repetitive Motion Injury (RMI) and back and neck injury. RMI is caused by repetitive, often forceful movements which usually involve hands and arms. Workers on assembly lines

are second to flu as a cause of lost work time in the United States.

Causes and symptoms of work-related physical strain

Seated work. Standing or sitting in a stationary position may unduly stress your arms, legs, and eyes. When you continually and repeatedly move your arm, neck and back muscles, or remain in one position for a long period of time, your circulation is affected and muscle soreness results.

Lifting. Lifting, pushing, pulling, or carrying heavy items frequently can result in RMI. Back, neck, and musculoskeletal injuries can occur, particularly when the objects lifted are bulky, heavy, or difficult to handle.

Injuries also occur when lifting items off the floor, causing you to bend over, or when the frequency of lifting is high, which can lead to muscle strain in your neck, upper back, and shoulders.

Frequent lifting for long time periods, lack of rest breaks, and

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... by Kathryn Jensen

OK, so I'm not David Letterman. But I know a good thing when I see it. Here's my count-down of the Top Ten Reasons to surf the APWA web site:

10 *You can impress co-workers by knowing that APWA is more than just another acronym.* "The American Public Works Association is an international educational and professional association of public agencies, private sector companies, and individuals dedicated to providing high quality public works goods and services," according to the website. The site also tells when APWA began (1937), where its headquarters are located (Kansas City—close to home!), and how many members it has (26,000 and counting). Besides these facts, the introductory page also has information on APWA's mission, institutes and special interest groups, task forces, partnerships, advocacy and government affairs programs, and a staff directory. After reading this section, you'll truly know the nature of this important organization.

9 *You have a new excuse to receive flowers and free lunches.* A current "Hot Topic" on the APWA website is the announcement of "2000 National Public Works Week" which commences on May 21. This is a chance for public works employees to receive recognition for their hard work.

Top Ten Reasons to Surf the APWA Web Site

8 *You can hear a lecture in Oklahoma about TEA-21 without leaving your building.* The APWA website has an informative section on videoconferences that makes it easy for any public works employee to "attend" a lecture given at a faraway location. It includes a schedule of upcoming videoconferences, as well as a "frequently asked questions" section that gives advice on how to downlink a satellite conference. These conferences use cutting-edge technology to provide cost-effective training to public works personnel. Past videoconferences are also available for purchase on videotape.

7 *You can get a discount when you buy The Public Works Tough Questions Book and other resources.* The website includes a catalog of videos and publications that focus on public works issues. The "best seller" and "classic" categories help buyers know what's popular with APWA members, and each product has a detailed summary. The catalog also has specialty items, such as APWA lapel pins and travel mugs. The best part is, APWA members receive a hefty discount on these items with the convenience of ordering online!

6 *If your APWA Reporter got lost in the mail, you have another chance to be informed.* This newsletter keeps public works employees in the know about highway issues nationwide. The website makes it easy to read the newsletter online by providing an article index dating back to 1998. The *Reporter* also includes employment ads.

5 *You can be a member of an exclusive organization.* One section of the APWA website is "for members only." For nonmembers of the APWA, what lies within this section is a mystery. One can only assume that this information is extremely valuable and absolutely TOP SECRET. Membership has its privileges.

4 *You can find out who makes the wheels turn in Montana.* The APWA site has links to its 67 chapters in all 50 states. It's easy to find out contact names and email addresses. You can also read about the highway issues that affect their region, and how they have solved common problems. The APWA site makes it easy to network with other public works employees!

3 *Field Trips!* The APWA website has up-to-date information on this year's conventions and symposia. In September, the City of Louisville, Kentucky, will host the 2000 International Public Works Congress and Exhibition. At this annual event, public works employees can receive training and see the latest equipment and resources.

The website also has information on the North American Snow Conference in Michigan and the One-Call Systems & Damage Prevention Symposium. These programs have information on timely topics in new settings. There is also a calendar section in the site that lists state and local events that may be of interest to public works employees.

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An Ultra-Thin Solution to Road Ruts

... by the Federal Highway Administration (FHWA) and the LTAP Clearinghouse

Got ruts at your city's intersections or washboarding in your county's roads? If so, Ultra-Thin Whitetopping (UTW) can be a candidate for resurfacing deteriorating asphalt pavements.

UTW is a relatively new technique that involves placing a thin concrete overlay (50 to 100 millimeters) to restore asphalt concrete pavements which have cracked and/or rutted. UTW is one of the candidates for rehabilitation of any area where rutting, washboarding and shoving of asphalt is a problem.

The technique was developed specifically for low-volume roads, parking areas and light duty airports. In UTW the concrete overlay is thinner than conventional whitetopping and forms a bond with the underlying asphalt, which creates a composite action. Short joint spacing significantly improves the overlay's performance.

The first experimental application of UTW was constructed on an access road in Louisville, Kentucky in 1991. Since then over 170 UTW projects have been constructed across the United States.

The advantages of UTW

- requires less time to construct and repairs last much longer.
- provides a durable wearing surface.
- is cost competitive.
- UTW surfaces reflect light; thus street lighting can be reduced.
- provides a cooler surface with environmental benefits.

UTW construction

The four steps to constructing UTW include:

Additional Resources

The American Concrete Pavement Association has information on UTW at their Web site. Go to <http://www.pavement.com>. Information includes an article, "U.S. Experience with Ultra-thin Whitetopping" by Lawrence W. Cole and James W. Mack as well as a UTW load-carrying capacity calculator.

The Indiana Ready Mixed Concrete Association offers a slide presentation on UTW at their Web site: <http://www.irmca.com/utw/index.html>.

An article on UTW by the Pennsylvania Concrete Promotion Council can be found at <http://www.paconcrete.com/ultrathin.html>.

Information on a UTW project in Traverse City, Michigan can be found at <http://www.irmca.com/utw/pavement.htm>.

A Minnesota DOT research project on UTW is described at <http://mnroad.dot.state.mn.us/newsletters/gauge151.html>.

The Tennessee Ready-Mixed Concrete Association offers information and a typical mix design for UTW at <http://www.trmca.org/index.htm>.

A description of a research project sponsored by the Pennsylvania DOT and the Federal Highway Administration can be found at <http://restructure.fhwa.dot.gov/ptp/Whitetop/whitetop.htm>.

A Public Roads article from the September/October 1998 issue, "Ultra-thin Whitetopping" by Charles J. Churilla can also be found at <http://www.tfsrc.gov/pavement/utwweb/article.htm>.

1) Prepare the surface so that it will bond the two layers. This is most often done by milling and cleaning or blasting it with water or abrasive material.

2) Place, finish, and cure concrete overlay using conventional techniques. The concrete mix is matched to the project's traffic conditions and requirements for opening the road to traffic. Many projects include synthetic fibers used to increase post-crack integrity of the panels. Proper curing is critical. Because the overlay is thin, it can lose water rapidly due to evaporation. Curing compound is applied at twice the normal rate.

3) Cut saw joints as early as possible to control cracking.

4) Open road to traffic.

UTW, the FHWA and the American Concrete Pavement Association (ACPA) launched a joint research effort to evaluate critical design factors affecting the performance of ultra-thin whitetopping.

ACPA, in cooperation with the Virginia Ready Mix Concrete Advisory Council and ACPA's Northeast Chapter, will arrange for the design of the concrete mixes and for the construction of the UTW pavement sections. FHWA will test the material properties for all pavement layers, test the pavements with Turner Fairbank Highway Research Center's Accelerated Loading Facility, and provide the data for a cooperative evaluation of the design method by ACPA and FHWA.

For more information on the project, go to the Turner Fairbank website at <http://www.tfsrc.gov>. ■

What's new in UTW?

To help state and local highway agencies make decisions about using

Brain and Brawn, *continued from page 5*

humidity or extreme temperatures can cause create extreme physical fatigue, increasing the chance of RMI occurring. Lifting objects in a safe position and at a safe weight will minimize back, leg, and neck muscle injuries.

Physical and personal limitations.

Physical injuries can also be related to varied temperature environments, awkward body positions, personal limitations, and fitness. Extreme temperatures at work may cause overexertion and heat-related illnesses or strained muscles and reduced manual dexterity in cold environments. Awkward body positions, particularly hand grips with bent and forced wrists, can cause injury.

Personal factors, such as age, gender, strength, and body size also affect your ability to function injury-free. Consider your own personal capabilities and limitations for safely working in your given environment.

Static work. Jobs that require little or no movement can create more physical stress than tasks that allow great physical movement. Static work includes bending for a significant length of time to perform a job or holding items for an extended period of time. Long periods of standing may also create varicose veins and back stress, as well as leg muscle and joint injuries.

Road workers should be aware of injuries that can be caused by fatigue, muscle strain, and temperature extremes. You can help decrease your chances for injury by keeping fit, eating right, and getting enough rest. Work smart!

Source: *Ergomation*. Kalamazoo: Aeromotive Company, 1991. ■

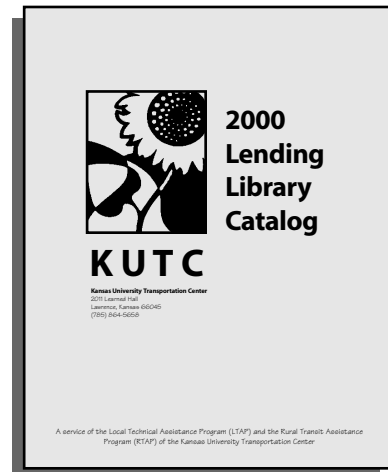
Is Your KUTC Lending Catalog Up to Date?

The 2000 KUTC Lending Library Catalog is now available. This edition contains several new listings for videos and publications and a couple of new features.

The indexes have been redesigned with headings at the top and bottom of each page so that it's easier to know if you are in the video index or the publication index.

We have also made it easier for you to find sources other than the KUTC for videos and publications. The last page of the catalog contains information on 13 additional sources for videos, publications and research information on highway-related topics, complete with phone numbers, addresses, and website addresses.

The 2000 Catalog was mailed to each county in Kansas earlier this month. If your city, township or com-



pany would like to receive a free copy, turn to the order form on page 15 of this newsletter. ■

Work Safety Questions For Supervisors



Supervisors: Ask yourself these basic workplace safety questions:

- ✓ Are employees properly trained? When workers are trained properly, they will be less prone to physical injury and pain.
- ✓ Are employees seated safely and comfortably? Seats need to be adjusted to a proper and comfortable height and workers should shift frequently to avoid muscle strain and ache.
- ✓ Does your crew know how to lift loads safely? Lifting is safest when done close to the body; they may suffer back pain the farther away the loads are from their bodies.
- ✓ Can employees easily access their work materials and are they comfortably adjusted to their work environment? Undue muscular and visual stress may result in fatigue.
- ✓ Are crew members' hands, arms, and wrists safe from strain? Equipment should be properly adjusted to each employee. Workers should take an hourly break to stretch the back, neck, arms, and wrist to prevent cramping and muscular stress.

Be Aware of Silica Dust Dangers

... by Britta Campbell

Silicosis is an incurable, disabling, and sometimes fatal disease caused by inhaling airborne crystalline silica dust. According to the Occupational Safety and Health Administration (OSHA), this disease accounts for 300 deaths annually and can also lead to lung cancer and tuberculosis. Exposure to silica dust may occur in a number of industries, and road construction is one of them.

Paving workers are at risk due to jack hammer operations, asphalt milling, and concrete mixing. Safe exposure rates and which types of silica are the most dangerous are not known. The only proven fact is that silica dust exposures can and have caused silicosis in the past.

Symptoms of silicosis may differ and early symptoms may go unnoticed. Continued exposure may cause shortness of breath, fever, and occasionally, bluish skin at the ear lobes or lips. Progression of silicosis leads to fatigue, extreme shortness of breath, loss of appetite, pain in the chest, and respiratory failure, which could cause death. Acute silicosis may develop after short periods of exposure, and chronic silicosis usually develops after 10 or more years of exposure.

OSHA's position on silica dust

OSHA is dedicated to informing employers and employees of the hazards of crystalline silica and ways to reduce exposure. In 1997, they sponsored a national conference on silicosis for labor, government and health representatives. The federal government has also identified crystalline silica as an item for a priority rule-making action, and sometime in the future, legislation may follow. This could affect highway agencies and paving companies. Agencies and companies

with risk of silica dust exposure would have to comply with safety rules, if adopted.

OSHA has conducted hundreds of silica inspections in recent years. In 1998, OSHA proposed \$407,000 in fines against a company in Illinois for exposing its workers to silica.

OSHA recommends a few simple

“The real issue (for highway agencies and paving companies) is that no one has any really definitive data on exposures generated by milling and resurfacing, dose rates, (and) which types of silica are most dangerous...”

guidelines for employees to follow to limit their exposure:

- Be aware of the effects of crystalline silica and that smoking adds to the damage.
- Know the work operations where exposure to crystalline silica may occur.
- Participate in air monitoring or training programs.
- Use acceptable respirators on the job when silica exposure may be high.
- Change into disposable or washable work clothes at the worksite; shower and change into clean clothing before leaving the worksite.
- Do not eat, drink, use tobacco products, or apply sunscreen in work areas.
- Wash your hands and face before eating, drinking, smoking, or applying sunscreen outside the exposure area.

General guidelines to follow

According to Chris Miller in an issue of *Better Roads* from October 1997,

“The real issue (for highway agencies and paving companies) is that no one has any really definitive data on exposures generated by milling and resurfacing, dose rates, which types of silica are most dangerous, and so on.” He urges agencies and companies to be informed about silicosis and the effects of crystalline silica. Companies

and agencies should run their own tests to determine if silica dust exposure is a hazard for them. Some of his recommendations for doing this are:

- Start your testing protocol with the employees on the ground, in and around the area where the work is being conducted. These workers are at the highest risk for exposure. The operator of the machine being used is next in line for exposure risk. Test this worker as well.
- If the work you are conducting is creating a plume of dust, the perimeter needs to be tested. The best way to prevent these plumes is to wet the dust. The finer the water mist, the less the dust hazard. If this does not stop the problem, figure out why before continuing with the project.
- Train your inspectors/operators. Make sure they know how to check the equipment being used for dust problems and can recognize a problem quickly.

Following these steps is one way to protect yourself from costly law-

continued on page 11 ►

KDOT Korner

Truck-Mounted Attenuator Put to Test at KDOT Work Sites

Photo courtesy of Energy Absorption Systems, Inc.



... by Kathryn Jensen

Much attention has been devoted in recent years to improving the safety at highway construction work zones. Design companies have been introducing new products to increase safety for both drivers and road workers. In addition to clear, prominent signage and orange or yellow-green vests for the workers, there are intrusion alarms that alert highway workers that a car has entered the work area and crash cushions designed to prevent cars from entering the work zone in the first place.

One such safety product is the *Safe-Stop TMA*, or truck-mounted attenuator. This device is designed to help prevent a car entering the work site. A unique feature of the *Safe-Stop TMA* is that it protects the truck that holds the TMA if a car hits it straight-on or at an angle.

When a car hits the TMA, the steel support frame collapses and two aluminum cartridges are crushed, absorbing the energy and stopping the car.

The TMA can be reused several times. The aluminum cartridges are designed for quick replacement after impact.

The *Safe-Stop TMA* provides Test Level 3 protection as stipulated in the National Cooperative Highway Research Program (NCHRP) Report 350. Level 3 Tests require that a TMA must successfully withstand dead-center hits by both small (1,808 lb/820 kg) and large (4,410 lb/2,000 kg) vehicles traveling at 62 mph (100 kmph). Optional requirements call for a series of tests demonstrating that the attenuator also meets specific criteria when hit off-center and at various angles.

The *Safe-Stop TMA* link on Energy Absorption System's website

(<http://www.energyabsorption.com>) states that the *Safe-Stop TMA* is the only TMA on the market that performed acceptably under the two mandatory and two optional tests recommended by NCHRP's Report 350, plus offers a high level of reusability. Reusability in highway safety products is an attractive feature to state transportation departments.

First-hand experience

According to the product's promotional material, the *Safe-Stop TMA* has prevented accidents. Kansas is cited as an example. Last November, a driver was attempting to enter I-435 from a parkway entrance ramp in Shawnee, Kansas. KDOT trucks and workers were at the location repairing the pavement with cold-patch asphalt. The driver did not see the work site or its signage, and she struck the TMA as she attempted to merge with oncoming traffic. The TMA was able to stop her vehicle, and no one was hurt. The car was travelling at approximately 40 mph.

Jeff Tice, KDOT District Equipment Superintendent, reports that a federal mandate requires KDOT workers to use TMAs in work zones. KDOT has been purchasing the devices since 1995, and Tice says that every new model has been designed to absorb increasingly higher speed crashes.

The *Safe-Stop* web site says that the TMA can be "quickly and easily moved during attachment and detachment." Tice has not exactly found that to be the case. KDOT

crews find it awkward to install on a truck due to its size and weight.

"It takes at least two men to manually mount the TMA on the truck," Tice says. However, Tice thinks it's well worth the trouble. "The safety part far outweighs that disadvantage," he said.

For more information about the Safe-Stop TMA visit their link from the Energy Absorption, Inc. website or call (312) 467-6750.

Source: Energy Absorption Systems' Spring Promotional Guide, 2000. ■

Silica Dust, *continued from page 9*

suits, workers compensation cases, and fines from OSHA.

Where to get more information

More information on how to protect your agency and its employees from the dangers of crystalline silica can be found on the Internet at OSHA's web site. The address is www.osha.gov/SLTC/SilicaCrystalline/index.html. This is an excellent resource with information on evaluation, control, compliance, training, and testing procedures. Basically, everything you ever wanted to know about silica dust and its dangers is on this site.

You can also contact Glenn Taylor at the Regional OSHA office in Kansas City at (816) 426-5861, or Christina Lench at the Wichita OSHA area office at (800) 362-2896. These individuals are crystalline silica regional coordinators designated to help assist agencies and companies in obtaining more information.

Sources: "Silica Dust Can Cause Silicosis," *OSHA Fact Sheet 96-54*, and "A Costly New Worry, Dust Exposure Litigation," by Chris Miller in *Better Roads*, October 1997. ■

Wisconsin County Held Liable for Injuries Caused by Pothole

This is reprinted with permission from an AP story about Minitowoc, Wisconsin, that appeared in *Asset Info*, a publication of Cartégraph Systems, Inc., Summer 1997, Vol. 2, Issue 2.

State and local governments might be held liable for injuries caused by potholes, ruts and dilapidated roads, a state appeals court has ruled.

The decision is a victory for John and Jeanne Morris, who filed the lawsuit, and others who suffer injuries from auto accidents on defective roads, said the couple's attorney, William Rudolph.

It could be a costly ruling for local governments that face ever-declining financial aid for roads, one city official said.

"I would say this has long-term, very negative implications," said Minitowoc Mayor Kevin Crawford.

The ruling reverses a decision by Juneau County circuit judge Patrick Taggart, who dismissed a lawsuit filed by the Elroy couple against the county for a 1994 accident. The Morrises filed the lawsuit after Mr. Morris suf-

fered permanent back and knee injuries when the driver of another car struck a pothole and a rut on the edge of State Highway 82 and pulled right. The other driver tried to turn back into her lane, but crossed to the center line and collided with Morris.

The driver has since reached an out-of-court settlement with the Morrises, but the county rejected their \$350,000 claim. Taggart dismissed a subsequent lawsuit against the county after it declared immunity because such road repairs are discretionary, not required. The county also claimed that the rut, or "drop off" from the paved surface, is not part of the highway.

But the Fourth District appeals court held that that county may be held liable under a Wisconsin state law that allows for damages for highway defects, regardless of whether or not the repairs are required. The appeals courts also ruled that a rut is part of the road.

The ruling means that juries will be able to decide lawsuits by the Morrises and others in the future, Rudolph said. ■

Did You Know?

- the benefit-to-cost ratio of a new traffic signal can be 26 to 1?
- some kinds of accidents can *increase* when you install a traffic signal?

This information and more is found in *Accident Reduction Factors*, published by the Kansas DOT in 1997. This seven-page booklet shows statistical results of traffic safety projects (adding and upgrading signals) initiated in Kansas to reduce the number of accidents at 90 intersections. These projects were funded by the Surface Transportation Program (STP).

To receive a free copy, turn to page 15.

A Leg Up

Walking on the ~~Wild~~ Safe Side

High-tech safety devices help American pedestrians and Finnish elk

... by Kathryn Jensen

As we look to a new century, many communities are feeling the the pinch of progress with rapid urban and suburban development. One by-product is traffic congestion.

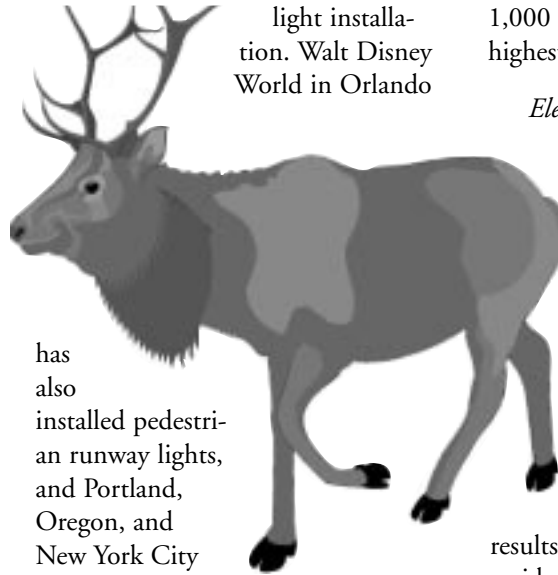
In major cities there are more people, more cars, and fewer pedestrians. But having fewer pedestrians has not lessened concerns about pedestrian accidents. Statistics from the National Highway Traffic Safety Administration state that in 1998, one pedestrian was killed in a traffic accident every 101 minutes. With the increased amount of vehicular traffic there is a critical need to evaluate the safety of the primary place cars and pedestrians intersect: the crosswalk.

New ideas in pedestrian safety

Some cities have responded to such statistics by improving crosswalk facilities with high-tech safety devices. These include:

“Runway” Lights. Some cities like Bellingham, Washington, are installing powerful lighted walkway delineation systems normally used for airport runways onto crosswalks and intersections that do not have traffic signals. When a pedestrian steps onto the street, lights embedded in the roadway are triggered and can be seen from up to 300 yards away. LightGuard and Traffic Safety Corporation produce these runway lights.

The city of Bellingham paid around \$30,000 for its first runway



light installation. Walt Disney World in Orlando

has also installed pedestrian runway lights, and Portland, Oregon, and New York City plan to install them in the near future.

Countdown signs. These signs replace the traditional Walk/Don't Walk signs with an electronic countdown that tells how many seconds pedestrians have to cross the street. According to engineers, this countdown is less confusing to interpret and will lower a pedestrian's indecision about whether to cross a street when the “Don't Walk” sign is flashing. Countdown signs have been installed in Palm Beach, Florida, and Sacramento, California.

Radar Sensors. Radar sensors are detectors that sense when slower pedestrians are in the road. When this occurs, the detector adds five seconds to the cycle. This detector is helpful to older pedestrians, who walk about 30 percent slower than other walkers. Individuals 60 years and older accounted for over

1,000 pedestrian deaths in 1998, the highest of any age group.

Electronic Eyes. When the “walk” signal lights up, the pedestrian also sees an additional device with a depiction of a pair of “eyes” that gaze to the right and left as a reminder that pedestrians should be cognizant of cross traffic even though they technically have the right-of-way. This type of device has been installed in Clearwater, Florida, and

results have shown a slight decrease in accidents.

Not just for pedestrians

High tech solutions are also being developed to help decrease injuries and deaths due to wildlife/vehicle collisions. Transportation engineers in Finland are using similar products to combat a growing elk accident problem. Studies have shown that 20 percent of all accidents on Finnish highways involve elks crossing the roadway. The Finnish National Road Administration conducted a study to find out where the accidents occurred most, and found that such accidents typically occurred in areas of low terrain that were close to riverbeds or the edge of a field.

To solve the problem initially, traffic signs were installed in accident-prone road sections. Road engineers checked the signs periodically to ensure that they matched the patterns of elk traffic. However, many drivers slowed down very little or not at all

New Design Guide on Public Rights-of-Way Accessibility



A new publication by the United States Architectural and Transportation Barriers Compliance Board is now available to help local agencies with issues related to accessibility for disabled individuals. It is called *Accessible Rights-of-Way: A Design Guide*. The Board developed this guide in cooperation with the FHWA to provide advisory information until guidelines for public rights-of-way are developed.

The 148-page guide shows how existing ADA standards for pedestrian routes can be adapted for application to existing sidewalks and street crossings. It provides best practices recommendations—and the rationale behind them—for the design, construction, alteration, and retrofit of public pedestrian facilities.

The Board believes that use of this guidance will lead to greater consistency in the design of accessible right-of-way features.

The guide is the latest in a series of materials that the Board has prepared as part of an outreach and training program on rights-of-way access. Under this program, the Board has developed a four-part video series, an accessibility checklist, and a report on accessible pedestrian signals. These materials, including the new design guide, are available from the Board by calling (800) 872-2253 or by e-mailing a request to: pubs@access-board.gov.

Source: *Access Currents*, a bi-monthly update from the Access Board, Vol. 6, January/February 2000 issue. ■

when they passed the signs.

Road engineers knew that when they designed new roads they would also have to design crossing arrangements for the elk. This involved installing an elk fence, which has been known to change an elk's travelling behavior and guide it to a safer crossing area. Then engineers developed a pilot program using "transport telematics" to alert drivers to elk crossings. Microwave detectors were installed for the detection of elk on both sides of the road. The detection zone of the radar reached up to 50 meters. This system was connected to a regional traffic management center.

When the detectors sensed move-

ment, a video recorder mounted on a pole near the detector would record in the direction of the movement for one minute. And for three minutes, an elk warning sign would light up to alert drivers. The video recorder saved the information for engineers to use in evaluating the system.

Based on results thus far, researchers found that drivers slowed down when the signs lit up only in inclement weather. During good weather conditions, driving levels stayed the same. The researchers conjectured that this was due to the number of false alarms, where motion other than that of an elk caused the sign to light up. Only one out of the

Top Ten Reasons,

continued from page 6

2 You can help Victor Hernandez battle a snail invasion in a reclaimed water system. The APWA website offers a discussion forum for anyone with general questions about public works. This forum offers the convenience of a chat room with the general topic of public works queries. The site already indicates that there has been discussion on such topics as stop signs to control speeding, flashing school zone criteria, and speed hump policies. However, Victor is still looking for an answer to his snail problem. Log on and help him out!

1 You can become a member without removing your hand from the mouse! The APWA site not only has information on how to become a member, but also lists the benefits of membership and has a downloadable, printable online application. It's easy to become a part of this association, and you can even check your membership record online.

So check it out! www.apwa.net ■

107 detections was identified as an elk. Drivers also might have assumed that because they had good visibility and could see no elk, there was no reason to slow down. Researchers recommended keeping the system at a close to 100 percent detection rate, allowing for some error, but to make other modifications to the pilot system for its use in future elk accident-prone sites.

Sources: *USA Today*, October 19, 1999, and the *FinnContact*, Vol. 7, No. 1, April 1999, a newsletter of the Finnish Highway Transportation Technology Center. ■

Video Reviews

Air Quality Conformity in Transportation Planning

20 minutes, 1999. Produced by Zapata Engineering. This video emphasizes the importance of being aware of air quality standards in relation to transportation planning.

It first outlines the Clean Air Act, which is revised every five years for communities to follow. Following national air quality standards means making sure a community does not have high levels of ozone, nitrogen dioxide, carbon dioxide, and particulate matter. Ozone usually comes in the form of smog, and carbon dioxide comes from gas emissions. A large part of this is often due to transportation sources.

Transportation planners need to be aware of high levels of this air pollution so as not to become a "non-attainment area," meaning federal funding may be cut for transportation improvement projects. The video

shows how transportation planners can incorporate air quality practices into their existing plans by encouraging carpooling, bicycle use, and congestion pricing at toll booths.

—by K. Jensen

Ultra-Thin Whitetopping: Today's Choice for Durable Pavement

8 minutes. Produced by the ACPA and NRCA. This video describes a pavement overlay, Ultra-Thin Whitetopping, that looks like concrete, cures fast, goes down easily, and is economical. This pavement rehab material is ideal for city streets, local or low volume roads, parking areas and intersections. —by A. Chatmon

Utility Cut Repair: Doing It Right

11 minutes, 1996. Produced by the Minnesota Local Research Board. The main goal of this video is to increase the quality of workmanship

associated with making and repairing utility cuts. —by K. Roche.

RC Flagman Priority Technology

11 minutes of video footage on a computer CD, 1999. Produced by the Ohio DOT. This video demonstrates a flagging machine with a control arm and signal light operated by remote control. The video is included in a CD that provides an evaluation report of this product. To watch the video you need a web browser that can view movies and Acrobat Reader (link provided). —L. Harris

Training the Trainer

32 minutes, 1998. Produced by The North Carolina LTAP. Provides clear and specific information for staff who teach/train road crews. Gene Harding of the University of Nebraska presents the skills he uses in working with motorgrader operators. —L. Harris ■

Calendar

... 2000 ...

- | | | | | | |
|---|---|--|---|--|--|
| <p>* April 16-20
NACE 2000: National Association of County Engineers Annual Meeting in Overland Park, Ks. Contact NACE at 202/393-5041</p> <p>*April 17—Dodge City
*April 18—Hays
*April 19—Hutchinson
*April 20—Chanute
*April 21—Lawrence
Low Volume Road Maintenance Workshop</p> <p>*April 18—Parsons
*April 19—Stockton
Motorgrader Training</p> | <p>*April 20
Work Zone Safety: Flagging Workshop in Lawrence, Ks.</p> <p>*April 20
MUTCD Update in Lawrence, Ks.</p> <p>April 26-28
Kansas Chapter AWPAA Annual Conference in Hays, Ks. Call Donald Larson, 785/628-7353.</p> <p>May 2—Hutchinson
May 4—Topeka
NHI Course: Work Zone Traffic Control for Maintenance on Rural Highways
Contact KDOT at 785/291-3947</p> | <p>*May 2
Using GIS in Public Works Applications (satellite downlink) in Chanute, Garden City, Hays, Lawrence, Manhattan and Wichita</p> <p>May 9-11
NHI Course: Construction of Portland Cement Concrete in Hutchinson, Ks. Contact KDOT at 785/291-3947</p> <p>May 15
Mid-Continent Transportation Symposium and MOVITE Conference in Ames, Iowa
Call 515/294-0467</p> | <p>*May 16—Manhattan
*May 24—Leoti
*June 13—Salina
*August 2—Topeka
TASK Workshop on Work Zone Signing</p> <p>*May 22-23
TASK Workshop on Roadway Lighting
Contact KSU at 785/532-5862</p> <p>*May 16
Roundabouts and Planning Design in Ames, Iowa
Call 515/294-0467</p> <p>*June 7-9
Kansas Society of Professional Engineers Meeting</p> | <p>*Week of July 16
TASK workshop on Risk Management to Reduce Tort Liability in Larned and Lawrence</p> <p>June 20-22
NHI Course: Hot-Mix Asphalt Materials in Topeka, Ks. Contact KDOT at 785/291-3947</p> | <p>June 27-28
Kansas Transportation Safety Conference in Topeka, Ks. call 785/864-3968</p> <p>August 14-18
TASK/CTRT Course on Traffic Engineering for Technicians in Manhattan, Ks. Call 785/532-1588</p> |
|---|---|--|---|--|--|

For information on calendar items indicated with a * or to suggest a topic for a future LTAP workshop, contact:

Rose Lichtenberg
KUTC
2011 Learned Hall
University of Kansas
Lawrence, KS 66045
785/864-2594

Free Resources

Check off your selections, fill in the bottom portion, and return this form to:
KUTC Materials Request, 2011 Learned Hall, Lawrence, Kansas 66045
or fax to 785/864-3199

Videos for Loan

Two videotapes or one-hour's worth of material per lending request. Two week lending period.

- Air Quality Conformity in Transportation Planning**
20 minutes, by Zapata Engineering.
- How to Give a Deposition**
17 minutes, by the Pennsylvania DOT.
- Local Government on Trial Part 1: The Background**
41 minutes, by the Pennsylvania Local Roads Program.
- Local Government on Trial Part 2: The Trial**
90 minutes, by the Pennsylvania Local Roads Program.
- RC Flagman Priority Technology**
11 minutes, Ohio DOT.
- Torts are Everybody's Business**
5 minutes, by the Pennsylvania DOT.
- Training the Trainer**
32 minutes, by the North Carolina LTAP.
- Ultra-Thin Whitetopping: Today's Choice for Durable Pavement**
8 minutes, by the ACPA and NRCA.
- Utility Cut Repair: Doing it Right**
11 minutes, by the Minnesota Local Research Board.

Publications

Publications are free unless otherwise noted.

- KUTC 2000 Lending Library Catalog**
56 pages, by Kansas LTAP and RTAP, 2000.
- Accident Reduction Factors**
7 pages, by Kansas DOT, 1997.

Equipment for Loan

Available free—for loan to local highway agencies. Call Mehrdad Givechi at (785) 864-2593 to arrange time period needed for loan. There are waiting lists for some of the items.

- Countmate (NC-20) Traffic Counter**
A road-tube traffic counter the size of a pocket pen that can record traffic at daily, hourly or 15-minute intervals.
- Countcard (NC-30) Traffic Counter**
A credit card sized, tubeless traffic counter that can record traffic at daily, hourly or 15-minute intervals. It can be used on facilities with operating speeds from 1 to 100+ miles per hour.
- Hi-Star (NC-90) Traffic Classifier**
A complete traffic classifier that can collect data relating to volume, speed, length and vehicle presence. Gap, spacing and headway data can also be recorded.

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Kansas LTAP

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

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Call 785/864-5658 (fax 785/864-3199)**

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

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

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