

# KUTC Newsletter

Spring 2001

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 road department administration

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## Highway Bridge Inspection: Are Things OK Out There?

A national study raises concerns. Are they shared by Kansans?

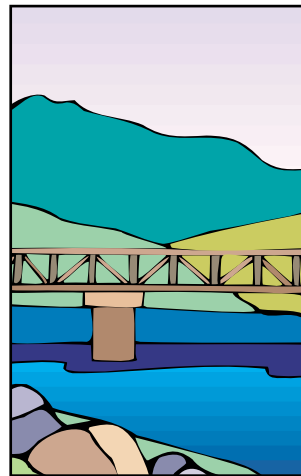
... by Ira Allen . . . . .

The U.S. Department of Transportation (USDOT) recently funded a survey to determine the state-of-the-practice for bridge inspection across the United States<sup>1</sup>. State departments of transportation (DOTs) participated in the survey, along with dozens of local highway departments and contractors. Questions centered on

inspection team staffing for visual testing, administrative requirements and the general use of nondestructive evaluation (NDE) techniques. Here are some of the findings.

### **Where's the PE?**

Most DOT respondents reported a Professional Engineer (PE) on site for bridge inspection less than half the time. The two most frequently mentioned reasons for a PE to be present were: 1) coincidence, or 2) the PE was present as a follow-up to a



previous routine inspection. Contractors were more likely than states or counties to have PEs on site during inspections.

### **Vision concerns**

Visual inspection was the most frequently used inspection technique for the bridges reported in the survey—whether concrete, steel, or timber. Yet 42 DOT respondents indicated that eyesight testing was not required of inspectors as

part of their job qualifications. Of the 66 county respondents, only two tested the vision of their inspectors. No respondents indicated that their eyesight testing was beyond that normally required for a driver's license exam.

The researchers recommended additional study to determine whether minimum eyesight standards would benefit bridge inspection. Additional study was also recommended to determine whether having a PE on site during inspection increases bridge inspection reliability.

### **More NDE**

The study showed a rise in the use of non-destructive evaluation techniques nation-

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<sup>1</sup>This survey, conducted by Wiss, Janney, Elstner Associates, Inc., was published in June 2001, and titled "Highway Bridge Inspection: State-of-the-Practice Survey."

## Bridge inspection,

*continued from page 1*

wide (see box at right). Further, the use of American Society for Nondestructive Testing (ASNT) Level III personnel has climbed approximately 76 percent (from 7 of 37 states in 1994 to 14 of 42 in 2001).<sup>2</sup>

Survey respondents gave suggestions for improvement in bridge inspection. Their ideas covered better bridge management, training and continuing education issues, and other operation areas.

What do Kansans think about these survey results? Do we have similar experiences here, and if, so, is there cause for concern? I asked the following Kansans in-the-know about bridge inspection for their thoughts:

- Jim Pickett, consultant with Kirkham Michael & Associates, Louisburg, KS;
- Penny Evans, county engineer, Miami County,
- Kim Thompson, Assistant Bridge Inspection Engineer, Bureau of Local Projects, Kansas DOT (KDOT),
- Don Whisler, State Bridge Inspection Engineer, also with the Kansas DOT.

### Good vision isn't the whole picture

Don Whisler said, "I would like to have everyone with good eyesight, but you'd have to have pretty bad eyesight to miss anything big." Whisler added that he does have an approach to maintaining vision standards, but it is informal. He noted that inspection team members work closely with one another, so vision problems become

<sup>2</sup>ASNT Level III certified individuals are involved in policy-level decisions about the use of their specialty areas of Nondestructive Testing (NDT), and are certified experts in at least one NDT technique (and must be familiar with the use of others).

## Common Nondestructive Evaluation Techniques

While the most prevalent NDE testing method for steel, concrete, and timber bridges for the survey participants was visual testing, liquid penetrant and ultrasonic testing were also popular for steel bridges, as was magnetic particle testing. Mechanical sounding was used frequently for both concrete and timber bridges, and the cover meter and rebound hammer were commonly used for concrete. Ultrasonic testing was used infrequently.

Visual Testing (VT)—looking at defects in the material with the unaided eye. The method requires a high degree of expertise and experience with bridge inspection. It is by far the most commonly used method for inspection. Frequently, visual testing is done first, and results may show that a more in-depth look is necessary.

Liquid Penetrant Testing (PT)—used to find cracks (surface discontinuities) that are not readily visible to the eye.

Magnetic Particle Testing (MT)—like PT, except instead of a color-changing liquid, a powder is usually used; also used to find surface discontinuities.

Mechanical Sounding (MS)—generally used on concrete or timber to check for delamination or cavities.

Cover Meter (CM)—an instrument measuring the depth of the reinforcing steel.

Rebound Hammer (RH)—used to check the density, strength, and hardness of a material. The amount of bounce-back is proportional to the rigidity and surface hardness of the material.

Ultrasonic Testing (UT)—used to measure surface and subsurface fractures (much like radar or sonar).

obvious. Whisler said, "If one of my guy's eyesight was really bad, I'd make him do something to correct it."

Whisler conceded that formal eyesight testing for inspectors "probably would not hurt."

Jim Pickett thought an eyesight testing program "would be a burdensome thing without much real benefit to the program," and added that as it is now "it's kind of self-regulating."

Penny Evans was equally unconcerned, saying, "It's probably somewhat important, but you don't need fighter pilot eyes to do a bridge

inspection." More important than perfect vision, she pointed out, is knowledge of what to look for.

And equally important is having two sets of eyes (at least) on each inspection. That helps prevent the possibility of one person's unidentified poor eyesight causing serious problems later.

The practice of looking at bridges regularly also helps to reduce the risk of missing potential problems.

One related issue raised by Whisler was first-aid training. This

*continued on page 12* ➤

## Bridge Inspection in Our State

*Local bridges.* There are over 20,000 non-state bridges in Kansas, most of which are inspected every two years. This is an enormous undertaking, often requiring cooperation among counties, cities, and contractors.

Jim Pickett said bridge inspection has received closer scrutiny nationwide in the past 20 years. Educating commissioners and highway managers about the need for bridge maintenance and replacement has been particularly important, along with instituting a uniform reporting system for all counties. The latter effort still has many glitches and is a frustration for some counties.

Bridge inspection is a federal mandate. The federal government developed inspection procedures and reporting techniques that states, counties, and contractors are all expected to follow. Some inspectors, like Penny Evans, go beyond these requirements in the techniques and reporting systems they use, adding lengthy written descriptions to the numeric ratings system required.

Pickett speaks for every Kansas bridge inspector saying, “our primary purpose is to protect the public.” Evans and Pickett believe that the bridge inspection program in Kansas serves this purpose well; bridge problems are identified before they become serious enough to endanger the traveling public.

Thompson would like to see more funds spent on bridge inspection. “Bridge decision-makers must strike a balance between funding inspection, MR&R (maintenance, repair and rehabilitation) and new design. I see great value in knowing what problems might be out there before other funds are committed,” he said.

Pickett said that sometimes lack of funding can be a problem. “The process of going with the lowest price doesn’t always lend itself to doing additional evaluation procedures that might be desirable,” he said. Of course, he hastened to add that his firm does what needs to be done to ensure safety. He said it is the job of a responsible professional to alert clients to the desirability of further testing, even when that testing was not initially budgeted.

For example, when Pickett spots a flaw that is not immediately threatening, he prefers to follow up with deeper tests to determine the extent of the flaw and when the bridge will require maintenance. Unfortunately, city and county budgets do not always have the funds to perform extensive evaluations. And because of lack of funds, most city and county inspections—as many as 98 or 99 percent—are conducted visually,

rather than with more advanced NDE techniques.

Many counties do not have the expertise to do their bridge inspections in-house, and they hire it out. But hiring contractors to conduct bridge inspections can pose potential problems. Evans noted, “There are bridge inspection consultants that are considered the McDonald’s of inspection—they’ll do it fast and they give you the minimum.” She thinks counties are often better off taking a slightly higher bid from a firm with a reputation for high quality work. Counties can find such firms by contacting KDOT or speaking with other counties to share experiences.

*State Bridges.* Nearly 5,000 bridges in Kansas fall directly under KDOT’s jurisdiction. Unlike many counties, the vast majority of state bridge inspections are done in-house. These inspections must also comply with federal testing regulations.

Whisler said of KDOT’s program, “Our number one mission is traffic safety and our number two mission is maintenance—and I feel we do a good job of both.” Whisler emphasized the importance of

inspectors being comfortable getting right up on and in the framework of the bridge. “We had one guy who had good experience, but he was afraid of heights, and he was a safety issue the whole time,” he said.

While counties generally have more constrained fiscal circumstances, bridge inspection on the state level currently enjoys “blessed times,” said Whisler. In addition to doing funding through bonds, state bridge inspection is receiving adequate federal and state funding—a relatively rare occurrence for an unglamorous program like bridge inspection.

Whisler’s primary complaint about the inspection process is that “the new bridges and new technology are not very inspector-friendly,” because they are designed with vital structural pieces out of sight. To combat this, his department has increased their use NDE techniques.

Whisler said, “I wouldn’t say we’re precisely cutting edge, but I will say that not too many states are doing a better job [of using ultrasound for pin-and-hanger structures.]” KDOT is also gradually switching from using liquid dye penetrant to eddy currents (similar to a magnetic field) for testing surfaces. When testing with eddy currents, inspectors don’t have to scrape off paint the way they do with liquid dye—a time-consuming and laborious process when applied to literally thousands of bridges. The use of eddy currents also allows inspectors to detect subsurface fractures.



Kansas

## Good News from KU

He's baaaaaack! Tom Mulinazzi will be spending more time with the Kansas LTAP starting this fall.



He recently retired from his administrative duties as associate dean at the School of Engineering at the

University of

Kansas. He plans to devote more time to university teaching and LTAP training.

Tom's workshops have been very well received over the years, so this is good news for Kansas local agencies. Look for more of Tom's workshops down the road. ■

## A Safety Officer's Best Friend

Local government in Kansas can receive a break on its workman's comp premium if it conducts regularly-scheduled safety programs. But sometimes it's a challenge for the safety coordinator to find new information to present.

The KUTC's *Lending Library Catalog* excels at providing safety information for road department staff. It lists hundreds of videos. Many contain safety-related information as well as dozens of other road-related topics—from tilt bed trailers to tumbleweed removal.

Many of you received the green-covered 2001 catalog in the mail. If you haven't, just ask—they're free. See page 15. Or visit [www.kutc.ku.edu](http://www.kutc.ku.edu) and order materials on-line. ■

## Gravel Roads News Release

As a result of our Motor Grader Operator workshops, we have developed a short news release that you might pass along to your local newspaper. Feel free to tweak it so that it best addresses your population. —Rose Lichtenberg, LTAP training coordinator

### FOR IMMEDIATE RELEASE

Kansas has 95,000 miles of gravel, soil or stone roads. It would be very rare to find a Kansan who hasn't driven—or ridden—on one of these surfaces. However, considering all the miles we travel on these roads, we have very little instruction on being a wise consumer of gravel, soil or stone roads. Here are a few important tips for drivers.

1. The most important thing to keep in mind when driving on these surfaces is to **DRIVE ON THE RIGHT-HAND SIDE** of the road. Roads don't just happen—they aren't just smooth surfaces cut across an area to designate where cars might drive. They are designed to work in a particular way.

Gravel/dirt roads have three distinct parts. The *crown*—the center of the road and the road's highest point; the *driving surface*—the area on either side of the crown, and the *ditch*—the area on either side of the driving surface, designed to collect run-off water. When drivers use the crown for a driving surface, the road can't move water to the ditches as effectively. Road maintenance will be required more often. Driving on the right-hand side of the road will help maintain the crown. This will facilitate good drainage to the ditches and help provide the best possible driving surface.

2. **BE ALERT TO HOW MUCH SPACE IS NECESSARY FOR A MOTOR GRADER TO OPERATE.** Most motor grader operators can tell you a story about backing-up onto or into something. Operators are busy doing their job—in front of them. It is difficult for them see those who encroach on their grader's operating area.

So keep your distance. Most operators are aware of traffic and will provide passing opportunities at frequent intervals.

3. **NOT ALL GRAVEL ROADS "GROW UP" TO BE PAVED ROADS.** Roads are surfaced in keeping with the amount and kind of use they receive. Planning and budgetary constraints are also important. Surfacing options are affected by three major considerations: 1) volume—when a road carries more than 200 vehicles per day; 2) vehicle weight—depending on the weight of the loads carried on the road. Kansas law allows up to 85,500 lbs. for commercial vehicles on local roads; and 3) road maintenance—when the local government has done adequate planning and has set aside adequate maintenance funds. A well maintained gravel road has the advantage of lower construction and maintenance costs. When compared with lightly paved roads, gravel roads can withstand greater loads with less expensive maintenance. Sometimes when gravel roads "grow up," they are still gravel roads.

# How to Keep Foot Out of Mouth

## and other tips for talking with the media



... by Lisa Harris . . . . .

If you are a highway department manager, you've been there...the sweaty palms, the dread, the dry throat when a reporter asks you about a hot subject. In your job there is no way around this, so as the saying goes, the best defense is a good offense. Here are some strategies for talking with the media to help you keep your feet on the ground when a reporter comes a-calling.

- ✓ Always think carefully before you answer a question. People often ramble—and something they wish they hadn't—if they jump in with both feet. Take a moment to consider what you want to say.
- ✓ Remember that silence is golden! Don't talk just to keep a conversation going with a reporter. Experienced reporters will be silent because often people they interview will talk to fill awkward voids—and say something they don't mean to say.
- ✓ Listen carefully to questions and respond clearly. Avoid jargon. If you have a key idea you want to get across, repeat it several times, perhaps using different words. This is especially useful for radio or TV broadcast: no matter how the tape is edited, you will make your point.
- ✓ Don't hurry. Speak slowly, using short, concise sentences. State your position in simple, easy-to-understand language. Use everyday examples and



### Off the Record?

Avoid speaking “off the record.” It's simply a bad idea unless you are experienced in dealing with media and know the reporter involved. Promises to keep information off the record are routinely broken. Don't depend on them.

A conversation or comment is not off the record just because you say it is. Nothing is off the record unless the reporter agrees to it. Even then, you have little recourse if the reporter breaks his word. If you don't want a statement quoted, don't make it.

Of course it's useless and foolish to tell a reporter that something is “off the record” after you've said it. It isn't. You said it. And he wrote it down.

analogies, when possible. You will be better understood that way.

- ✓ Never talk down to a reporter. You are partners in getting your message across. Arrogance will come across negatively to an audience. An “attitude” can turn an interview into a confrontation.
- ✓ Don't lose your temper! No matter how antagonized you feel, recognize that this can be a tactic to get you to say something you don't wish to say. If a reporter provokes you, politely terminate the interview and offer to call back later. And do so—after you cool down.
- ✓ Some reporters may ask to tape an interview over the telephone. This is a

common practice for radio reporters to obtain “sound bites” and to get accurate quotes. The reporter should inform you of the taping before it begins.

- ✓ If you don't know the answer to a reporter's question, or don't wish to answer, just say “No.” A lie or a bad guess will return to haunt you. You will lose credibility.
- ✓ If you anticipate an interview may become testy, bow out gracefully.

Adapted from “Working With the News Media—a Faculty Guide,” *USC News*, University of Southern California, March 26, 2001. ■

# More on GASB-34: The “modified approach” as part of an asset management system

... by Tom Maze, Vice President,  
Howard R. Green Company . . . . .

*Editor's note: This is our fourth article on GASB 34. Here's a brief summary of the first three articles:*

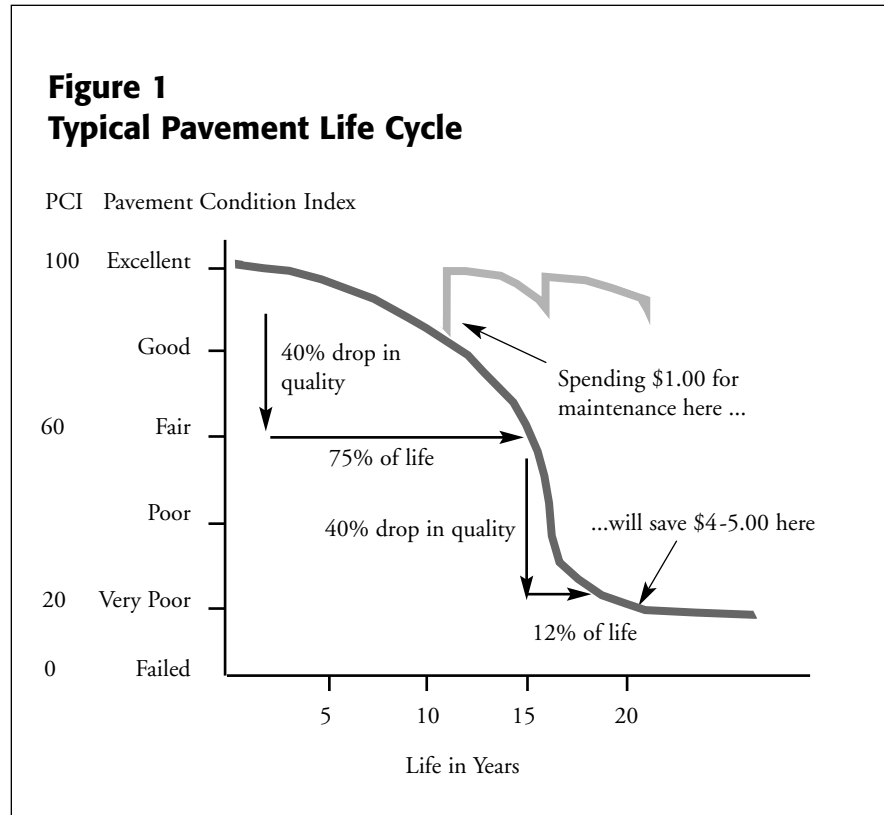
*The Governmental Accounting Standards Board (GASB) sets Generally Accepted Accounting Practices (GAAP) for governmental agencies. Your city or county either prepares an annual GAAP financial statement or has a GAAP waiver from the Kansas Division of Accounts and Reports and prepares a simpler statement called KMAG.*

*In June 1999, GASB Statement No. 34 (or GASB 34) set new GAAP requirements for reporting major capital assets, including infrastructure like roads, bridges, water and sewer facilities, and dams. Under GASB 34, over the next few years Kansas governmental agencies that use GAAP reporting must begin showing the value of these assets in their financial reports. Agencies may report assets using either depreciation methods or a “modified approach.”*

**T**o use the modified approach for asset reporting, agencies must demonstrate they do each of the following:

- maintain an up-to-date inventory of infrastructure assets,
- regularly assess the condition of all infrastructure and summarize the results using a measurement scale, and
- annually estimate the cost required to maintain the assets at a minimum condition level.

Clearly, the modified approach requires more data collection than does the depreciation approach. In addition, processes for valuing infra-



structure assets under the modified approach are undefined in GASB 34; agencies are merely required to use “consistent” and “reasonable” methods for valuing assets.

With more front-end work and so much ambiguity, why would agencies choose to use the modified approach?

### Benefits of modified approach

Perhaps the most significant advantage of the modified approach is that the reported value of assets will reflect the positive effects of maintenance activities—particularly preventive maintenance—on the condition (and therefore the value) of roads, bridges, and other assets. Such an approach reflects a more accurate portrayal of actual infrastructure value than does the use of a calculated depreciation.

Using depreciation does not take into account the value added or maintained due to maintenance efforts.

For example, an ongoing study for the Iowa Department of Transportation by Iowa State University has cited literature reporting that strategic applications of maintenance treatments improve pavement life cycles, as demonstrated in Figure 1.

The dark gray curve shows a presumed life cycle of a new pavement with no preventive maintenance. Note the accelerated deterioration of pavement condition after about 10 years. The light gray curves show how strategically timed, relatively low-cost applications of preventive maintenance treatments before accelerated deterioration begins can restore the pavement to near-excellent condition

(and therefore near-new value).

Using calculated depreciation, the depreciated value of this pavement over the years does not reflect the significant value added by preventive maintenance activities. Under the modified approach, the pavement manager assigns a more realistic value to this pavement, based on its actual condition following preventive maintenance activities.

In addition, GASB 34's requirements for using the modified approach (maintaining up-to-date inventories, regularly assessing infrastructure conditions, and estimating maintenance costs) will result in agencies having better information about their infrastructure systems. This information will help guide commissioners and staff in planning overall resource allocation decisions.

**Asset management and GASB 34**

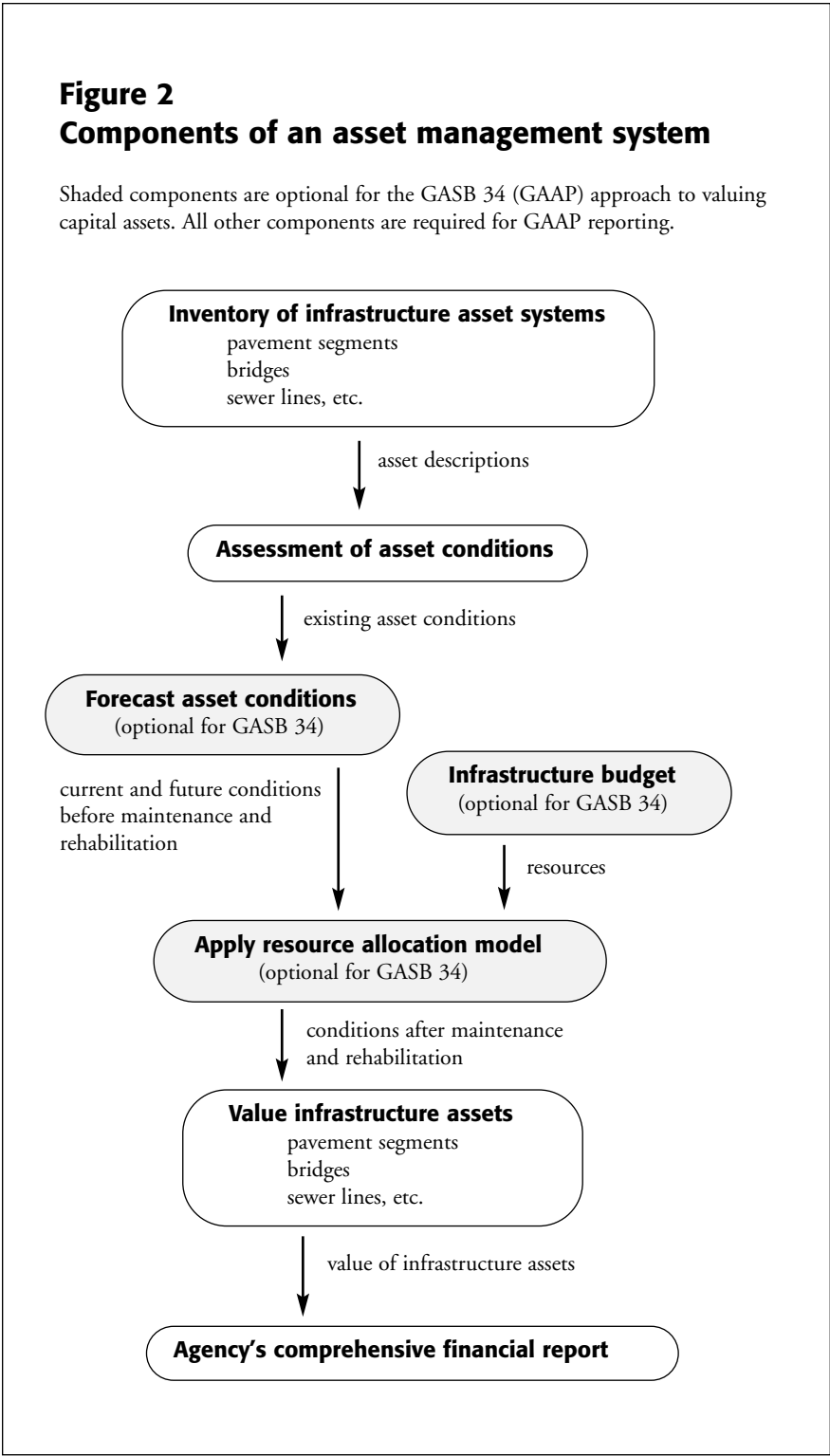
GASB 34 requires that agencies report the current value of infrastructure assets but does not require that they develop a system for managing those assets. However, GASB allows agencies to use a modified approach as a more realistic and useful alternative to depreciation. The modified approach provides a strong incentive to agencies to take steps toward developing a full-fledged asset management system.

**How?**

The required elements of the modified approach are also the basic elements of an asset management system. In fact, if an agency develops a thorough infrastructure inventory and then regularly assesses the condition of its infrastructure (the first two requirements of the modified approach), it has completed most of the work involved in establishing an asset management system.

**What is asset management?**

According to the Federal Highway Administration's (FHWA) web page, asset management systems assess the



economic trade-offs among alternative investment options, providing information that helps decision makers make cost-effective investment decisions.

The web site states "The advent of increasingly powerful computer

systems has made the practice of asset management possible. These computer systems not only put sophisticated analytical tools at a highway staff's fingertips but also allow agency offi-  
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# Roads Scholar Program Planning in Process

... by Lisa Harris . . . . .

Many professionals, from attorneys to nurses to plumbers, must have specific training before they are considered qualified to do their jobs. Not so for most highway workers. Employees are hired based on a subjective assessment of skills. Employers sometimes find it difficult to compare one applicant's skills with another. And employees applying for jobs may find skills are needed for which they have had no training—either because their current job did not require it or no training exists. You can't just go sign up for highway management school.

This situation is being addressed by the Kansas County Highway Association (KCHA). At their Spring 2001 meeting in Hays, the Association agreed to form a task force to develop recommendations for a "Roads Scholar" program in Kansas. There are many such programs across the country.

This program would provide standardized training for Kansas county highway department employees in three different areas: 1) technical skills, 2) supervision, and 3) leadership. It would also provide separate orientation training for county engineers who are new to county highway work.

A planning task force was formed and includes Ron Karn (chair), Rod Meredith, Ron Bonjour, and Hub Casper from KCHA; Larry Emig from KDOT; Marla Fluentes with the Kansas Association of Counties (KAC) and Rose Lichtenberg and Pat Weaver from Kansas LTAP. The task force has met several times since May, and has developed recommendations for KCHA to consider.

Karn explained that one of KCHA's goals with the Roads Scholar

Program is to "help take out some of the shock" when counties change key administrative personnel. He said it can take up to a year for a new employee to get up to speed on all the procedures and regulations associated with county road work.

For the certification program, the task force recommends three different training programs, each with its own certificate of completion:

## 1. Roads Scholar Certificate

*emphasizes technical training*

—approx. 50 hours of training in:

- risk and liability issues
- work zone and traffic control safety
- snow and ice control
- gravel and paved road maintenance
- signing and striping
- workplace/site safety
- pre-trip inspections
- what every employee needs to know about county government
- communicating effectively with citizens

## 2. Advanced Roads Scholar Certificate

*emphasizes supervisory skills*

—requires Roads Scholar certification and approx. 50 additional hours of training in:

- legal issues for supervisors
- effective communication
- managing employee performance
- employee discipline
- ethics
- providing employee safety
- building teamwork
- decision-making skills
- road and bridge management

## 3. Master Roads Scholar Certificate

*emphasizes executive skills*

—requires Roads Scholar and



Advanced Roads Scholar certification and approx. 50 additional hours of training in:

- budgeting, managing public funds, state reporting
- human resource management
- public presentations and media relations
- project planning/management
- intergovernmental relations with local, state and federal agencies
- legal issues in public works
- decision-making and problem-solving for effective supervision
- asset management, job costing, purchasing, and property disposal permits and regulations
- local project coordination with KDOT
- engineering in public works
- resource management in public works
- fleet and equipment management and maintenance

## County Engineer Orientation

This component of the Roads Scholar Program has not yet been fleshed out. It is not part of the certificate programs. The orientation will include helping engineers who are new to county highway work become familiar with working with KDOT on local projects.

The Roads Scholar planning task force's work is nearly complete. The next step is for their work to be endorsed by the KCHA. Then a new, standing committee would be formed

## KDOT Korner



# What's Happening with the Low Volume Roads Manual?

... by Lisa Harris . . . . .

An indispensable reference for local road departments in Kansas is a small gold-colored booklet. Most folks call it the *LVR Manual*, short for *Handbook of Traffic Control Practices for Low Volume Rural Roads*. KDOT puts it out, along with the Kansas County Highway Association, with legwork by K-State.

Published a decade ago, some of the information is about as current as Roy Williams' first days at K.U.

A committee has recently been formed to develop a strategy for reviewing the handbook to add updated information. The committee will be suggesting changes to be incorporated in the next edition.

Committee members are:

Jerry Fowler, Saline Co.  
Mike Graf, Ellis Co.  
Dale Pfannenstiel, Trego Co.  
Gary Rosewicz, Marshall Co.  
Glenn Larson, Washington Co.  
Ronald Karn, Jefferson Co.  
Frank Young, Neosho Co.  
Doug Daugherty, Wichita Co.

Dan Harden, Riley Co.  
Gary Schneiders, Pawnee Co.  
Chip Woods, Lyon Co.  
Hub Casper, Anderson/Coffey Co.  
Andy Haney, City of Ottawa  
Larry Mangan, City of Wellington  
Bruce Remsberg, City of El Dorado  
Bob Alva, FHWA  
Joel Breakstone, KDOT  
Lee Roadifer, KDOT  
Charles Brunson, KDOT  
Eugene Russell, Kansas State Univ.  
Bob Smith, Prof. Emeritus, KSU

The *LVR Manual* update is part of a K-TRAN research project through Kansas State University. Another part of the project is to update the *Traffic Control Manual for Small Cities* and combine the two updated publications in one binder.

The committee is one year into the two-year project, but they have hit a snag.

"We've done substantive work on parking, regulatory and advisory signs and speed zones," said Joel Breakstone, traffic safety engineer for KDOT's Bureau of Local Projects, "but we're treading water right now until we get

the new MUTCD." The project specifies that the updated manual will contain guidance from the new MUTCD.

The Millennium edition of the MUTCD has been released, but substantial revisions are forthcoming.

*"We're treading water right now..."*

Asked when these revisions will be ready, Breakstone replied, "We've just received word [from the federal government] that the MUTCD is printed and they are getting ready to ship it."

The committee has completed most of its preliminary work; K-State is currently compiling it. The committee must wait for the MUTCD revisions before doing any more work, and they have found that frustrating. "As a result it may take us longer than two years to complete this project," Breakstone said.

For more information on the *LVR Manual* update, call Joel Breakstone at 785/296-3861. ■

to help develop and oversee the program. Some task force members would continue to be on this committee.

The Roads Scholar training sessions will not reinvent the wheel—the training will include a combination of existing or adapted courses offered by LTAP and the KAC, plus some new courses yet to be developed.

### Questions About the Roads Scholar Program

*Who's going to pay for it?*

We don't know yet. Funding considerations will be worked out after KCHA gives the go-ahead for the proposed curriculum. There might be an application fee to cover administration of the application process.

*Can I get credit for training (or job experience) I've already received?*

The task force is exploring the idea of grandfathering-in pertinent training taken within a reasonable number of years. The applicant would likely list the training they've received and provide proof of participation; a commit-

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## A Leg Up

# Hey! We need more time than *that* to cross the street!

Pedestrian partnership encourages walkers to speak out.

... by Emily Smith of the University of North Carolina Highway Safety Research Center

“We don’t go walking on our street,” says Evelyn Moe. “I don’t even allow my kids out in the front yard unless I’m out there.”

Moe and her husband, Mike, live in the country outside Sumner, Wash., about an hour and a half drive south of Seattle. Tulips and rhubarb grow in the fields near the 3-bedroom home where they are raising their two young boys: Kevin, 4 and Lyle, 2.

“The area that we live in is mostly a rural area with lots of farming nearby,” 30-year-old Moe said. “Often, large trucks go by with rhubarb on the back and when that happens, basically, the whole house shakes.”

The speed limit on the narrow two-lane street in front of the Moe’s home is 35 miles an hour, but often vehicles whiz by exceeding 45 mph. The street has no sidewalks nor shoulder for walking.

“There’s just enough room for the cars to go by,” Moe explained. “If you wanted to walk there, you’d be walking out in the muddy fields along the side of the road.”

“The road winds too,” she added, “so there are a lot of blind curves and cars can pop out all of a sudden going pretty fast.”

David Perez lives on the other side of the United States from the Moes but has a similar problem: his street isn’t safe for his kids either. The street in front of his home in a tree-lined neighborhood in Durham, N.C. is used as a shortcut for commuters trying to gain a few extra minutes going to and from work.

The speed limit is 25 but people often exceed it, 37-year-old Perez said. “This year a car ran into the front of the house on the opposite corner of where we live,” he said. “The guy was going so fast that if it wasn’t for a big tree in the yard, he probably would have ended up in the house.”

These street conditions understandably make Perez and his wife, Melannie, nervous about allowing their 5-year-old son, Jordon, to play in the front yard. And unless something is done, the situation is only going to be worse when their 5-month-old daughter learns to walk.

### Making America Walkable

The complaints of the Moe and Perez families are not isolated examples. Rather, they are practically the norm in neighborhoods all across the

United States these days. But how does one person or one family or one community go about making the changes necessary to make our streets safer for our children and for pedestrians in general?

According to Jerry Scannell, president of the National Safety Council in Chicago, national awareness of the problem is the seed of change.

“I think people tend to think of themselves primarily as drivers and only incidentally as walkers and because we’re not aware that we’re pedestrians and that we deserve consideration, we accept conditions we shouldn’t accept,” he said. Priority needs to be given to providing places where we can walk safely.”

Scannell is the chairman of the “Partnership for a Walkable America”—a coalition of private, state and federal organizations from all across the United States who have come together with the common cause of increasing public awareness about the unquestionable need for our communities to be safer and more accessible for walkers.

Another focus of the Partnership is to emphasize the healthiness of walking — both the physical benefits it provides for those who do it and the social benefits communities reap from this activity.



In order for change to happen, the public is going to have to ask for it, said Partnership member Bill Wilkinson, who is also the director of the Pedestrian Federation of America in Washington D.C.

"The only thing that's going to make pedestrians be a priority is people getting out there and saying: 'This is not okay in the community I'm going to be living in. I want a place where I don't have to worry about my kids walking to school or me having to drive everywhere I want to go,'" he said. "The public doesn't have to have the answers. They just have to have the indignation to say: 'Excuse me, this isn't what I want. I want a transportation system that is a whole lot friendlier toward the community.'"

### Children At Risk

The members of this growing partnership, which includes private, state and federal groups, are particularly concerned about the safety of child pedestrians. According to figures from the U.S. Department of Transportation (US DOT), 806 children, ages 15 and younger were killed in pedestrian crashes in the United States in 1994. These data also show that on average, 10 boys and 5 girls, in that same age bracket, died each week in a pedestrian crash in 1994.

The incidence of injuries among children due to pedestrian crashes is even higher. Many of these injuries are also grave. The USDOT figures for that year show that 30,833 children, ages 15 and younger, were injured in pedestrian crashes. Those figures also show that 340 boys and 250 girls, ages 15 and younger, were injured each week in pedestrian crashes.

The injury and fatality rates for young pedestrians are troubling, but they can be changed, said Partnership member Dr. Alfred Farina, a research psychologist in charge of pedestrian and bicycle safety research for the USDOT National Highway Traffic Safety Administration (NHTSA).

Dr. Farina said kids need to be taught to be more careful around moving vehicles. He added that many programs to educate children to stop and look left, right and then left once more before entering the street have been successful in reducing the incidence of injury and death in young pedestrians.

"Kids are unacquainted with the dangers of the road and they also tend to think of adults as people who take care of children and that attitude may extend to how they think of drivers," Dr. Farina said.

"We did a study one time about the street crossing behaviors of kids, ranging in age from kindergartners to third graders," he said. What we found was that about 90 percent of the crossings made by young children were in error. "One of the most common errors young children make, Dr. Farina said, is to dart out" into the street without first checking left, right and then left again for traffic. In fact, 46 percent of the pedestrian crashes involving children, ages 5 through 14, can be attributed to "dart out" behavior.

Another factor contributing to child pedestrian crashes is that many parents tend to overestimate their child's ability to deal with street conditions, said John Moffat, director of the Washington Traffic Safety Commission. Moffat is a member of the National Association of Governors' Highway Safety Representatives, which is a member of the Partnership.

Pedestrian crashes are one of the biggest killers of children ages 5 to 9," he said. "That's because children often dart out into the road and by the time a driver detects them and is able to stop, it is often too late."

### Parents Often Overestimate Cognitive Abilities Of Children

Allowing children to play unattended near a street is also dangerous, according Partnership member Richard Blomberg, the president of Dunlap & Associates in Stamford, Conn., a

research organization that specializes in pedestrian safety research.

"Parents often say to their children: 'Well, you can play outside, but don't leave the driveway,'" Blomberg said. "We tend to look at children as little adults and forget that they aren't fully developed yet. Their ability to localize sound isn't fully developed. Their judgment isn't fully developed. Their vision isn't fully developed. We as adults have to have an understanding of the limitations of a child."

Children are often so focused on their play activities that they don't notice cars, said Partnership member John Fegan, the bicycle and pedestrian program manager for the Office of the Secretary of the USDOT.

"If a ball or something rolls out into the street, they just run out after it without thinking about the cars," he said.

"Kids also don't have an appreciation for the dynamics of how cars work," he added. "A car obviously just can't stop on a dime and kids don't have an understanding of that. I don't think they have a sense of the danger that a car could hit them. And they're rewarded for that belief and that behavior because most likely, they have run across the street many times and have not been hit by a car. But it only takes one time."

### Changes That Can Help

Cars parked on streets are another safety hazard for children, according to Fegan.

"We know that children dart out and with parked cars, drivers can't see them," he said. "There are several things we can do to limit that hazard. One would be to change how cars park. Engineers could eliminate street parking or switch to angled parking on one side of the street. Another would be to lower the vehicle speed so there is more time to detect a child and reduce potential injuries if there's an unfortunate crash."

*continued on next page* ➤

### **Pedestrian Safety, from page 11**

But lowering the vehicle speed assumes there will be adequate enforcement of the law. And removing parked cars from streets assumes developers and engineers will offer different kinds of housing and street designs than they do now. Both these things and more can be accomplished, according to Partnership member Carol Tan Esse, program manager for pedestrian and bicycle safety research for the Federal Highway Administration.

“If people want a walkable community, they need to let the engineers and architects and developers know,” she said. “In the end, the consumer dictates the market.”

### **In Praise Of Sidewalks**

According to Blomberg, many community developments these days simply aren't safe for children.

“I consult with several school districts to help make their school bus-

ing safer and some of the problems are zoning laws that don't make any sense,” he said.

“One of those laws is if you build 13 or fewer homes, you don't have to put in sidewalks. And if you add homes later, you still don't have to build sidewalks. So guess how many homes each developer builds initially? And then two years later, they're building another 5 or 10 homes and meanwhile, they're grandfathered and there are no sidewalks.”

Many of these neighborhoods later have problems transporting children to school, Blomberg said. The roads there are narrow and winding with lots of blind curves and since they don't have sidewalks, children are forced to walk and wait for the bus in the road.

This problem is not isolated to Connecticut, said Partnership member Charles Zegeer, who is associate director of roadway studies at the University of North Carolina Highway Safety Research Center in

Chapel Hill, N.C. He also is a member of the Institute for Transportation Engineers, a Partner organization.

“In many areas of the country, sidewalks are kind of an exception rather than a rule and children are expected to walk to school or to the bus stop in roadways or ditches,” he said.

Making our communities more walkable is a shared responsibility, according to Scannell.

“Maybe one of the best messages that something like the Partnership can bring forward is that we all have got to come together and share responsibility for this,” he said.

“If parents did their part and schools did their part and traffic engineers and developers did their part—all of that over time would create a better environment and one in which our children would not only be safer, but come to value walking more.” ■

*This article is reprinted with permission of Partnership for a Walkable America.*

### **Bridge inspection concerns, from page 2**

used to be a part of the state bridge inspection program, but the budget for it was cut during a period of low

“We had one guy who had good experience, but he was afraid of heights. He was a safety issue the whole time.”

funding. Whisler suggested establishing some sort of first-aid training/health check program for inspectors, and remarked that such a program would likely be more valuable than an eyesight testing program.

### **PEs not needed in most cases**

The lack of PEs at inspection sites was equally unruffling to our Kansas contacts. Whisler said, “Would I like to have all engineers? Of course. All PEs? Probably. But my technicians are very well trained. You'd be surprised

what they know.”

He added that one advantage of technicians over professional engineers is that “technicians stick around. The majority of PEs, if they're competent, don't.” For Whisler, the main difference between having a PE or a

technician on his inspection staff is how long they have to work for him before he really trusts their inspection judgment. For technicians, “a year, year and a half.” For an engineer, “usually about six to eight months.”

Jim Pickett said, “I believe that PEs have a role [in bridge inspection], but for the vast majority of bridges it is not really cost-effective to have your higher-paid engineers doing the inspection.” He sees PEs more as a resource for trained technicians when they encounter a problem they're not sure how to deal with. In other words, you don't need a heart surgeon to take your blood pressure—anyone who's properly trained can do it.

An experienced technician can spot a flaw or fracture as well as a PE in most cases. Kim Thompson said, “anyone can run the tests—I would have no trouble accepting the results

of a technician.” This is particularly true for those fortunate enough to have a crew like Whisler’s, whose inspection team has only one member with less than five years of experience.

### Use of NDE Techniques

As in the federal survey, the most commonly used nondestructive evaluation technique reported by the Kansans interviewed was visual testing.

Jim Pickett said his firm does not do much beyond visual testing and some work with “rebound hammers, that sort of thing.” They refer clients to a firm that specializes in more in-depth NDE techniques when the need arises.

Whisler’s crews at KDOT do a lot of testing with ultrasound and eddy current techniques, and also with liquid dye penetrant.

Evans said, “When we [in Miami County] visually determine there’s a problem, we bring in the additional methods.” In her case, these include taking corings for timber, using a potentiometer, and doing underwater inspection, among other methods.

Note: As we were going to press, FHWA released its first follow-up report on visual testing. Results are still inconclusive about whether eyesight standards would be helpful. However, the study did find inconsistencies and inaccurate bridge inspection data from inspectors using visual testing. The study has several recommendations, including revising the Condition Rating System to make it more systematic and less subjective, and better training for inspectors about types of defects that should be identified and how best to detect them.

For a copy of the follow-up report, turn to page 15. ■

*Ira Allen is a junior in English at the University of Kansas and writes and does research for the Kansas University Transportation Center.*

### The modified approach,

*continued from page 7*

cial to perform ‘what if’ analyzes ...”

Many agencies already systematically manage various physical assets through pavement management systems, bridge management systems, etc. These help decision makers allocate resources among construction, maintenance, and other needs within each system. Individual management systems can be the building blocks for the type of broad asset management system described by the FHWA and supported, at least implicitly, by GASB 34. Such an asset management system helps decision makers allocate resources effectively among a variety of different systems (e.g., pavements, bridges, and sewers) that compete for an agency’s resources.

A basic flow chart of an asset management system is shown in Figure 2 on page 7. The elements of an asset management system that are also required for GASB 34’s modified approach to asset valuation are shown, as well elements that are not part of GASB 34’s modified approach (these are shaded and are labeled “optional.”)

Start with the upper left corner—conducting an inventory of infrastructure assets. The resulting inventory of road segments, bridges, sewer lines, dams, etc., is the foundation of an overall asset management system. The inventory includes basic information on construction cost, location, design characteristics, and construction history, but may include more detailed information on maintenance performed, use (e.g., traffic characteristics), conditions during construction (weather, temperature, etc.), materials specifications and origin, etc.

The next element is the process of conducting field observations to determine the current condition of assets identified and described in the inventory.

The next three elements in Figure

2 are not explicitly required as part of GASB 34’s modified approach. However, using these processes, which are central to an asset management system, will greatly enhance agencies’ ability to accurately predict needed annual expenditures to preserve assets at or above the level they have prescribed.

A multi-year asset management system uses a computer program to forecast the condition of assets based on possible maintenance activities, and another module that allocates resources for asset maintenance and rehabilitation, given a multi-year budget.

### What’s next?

Our next article on GASB 34 will discuss using asset condition information to estimate an asset’s value under the modified approach. As deadlines for complying with GASB 34 near, the *KUTC Newsletter* will periodically provide updated information.

*Adapted with permission from the May-June 2000 issue of Technology News, Iowa Center for Transportation Research and Education. ■*

### Kansas Roads Scholar Program,

*continued from page 9*

tee would determine which classes can be applied towards certification. On-the-job experience would also be considered for credit by the committee.

*Who will be the certifying authority?*

This needs to be worked out. KDOT and LTAP were both discussed, but LTAP could only verify participation in the courses.

*Can I take classes for Levels 1 and 2 at the same time?*

The planning task force recommends yes, pending KCHA approval.

Stay tuned for more updates in future issues of this newsletter. ■

## Video Reviews

### “Get the Dirt”

(8:44 min.) This video promotes proper procedures for utility locates, emphasizing use of one-call programs. It discusses how damage prevention is a shared responsibility.

The four steps for digging safely are stressed and demonstrated: 1) call before you dig; 2) wait the required amount of time; 3) respect the marks; and 4) dig with care. The video is well produced and provides a good introduction to considerations for safe digging. Produced in 2000 by Dig Safely project, with 23 co-sponsors, including the Minnesota DOT and utility companies and contractors.

### Road Blading—Forest Service Style

(18 min.) This production combines footage of blading roads and interviews with operators to show the Forest Service’s “light on the land” approach

to maintaining low volume roads.

The Forest Service uses a four or five pass process, and each step is demonstrated. The video also shows an operator grading a drainage dip and how lead-out ditches are maintained. This video is useful for road crews. Produced by the U.S. Forest Service.

### Making Small Rocks out of Big Rocks

(12 min.) Road crews operate the Forester C-2000, a mobile rock crusher, at three demonstration projects on U.S. Forest land. This machine is used for in-place road reconditioning in locations where the quality and expense of standard crushed aggregate is not warranted. Includes interviews with operators describing the machine’s maintenance requirements.

This is an interesting video for viewing road professionals describing

how they do their work. [It also has some fine slide-guitar blues music in the background.] Produced by the U.S. Forest Service in 1998.

### Night Lights

(13:45 min.) This video focuses on retroreflectivity—what is is, how it works, and how retroreflective products are made. It also discusses other considerations in nighttime driving, such as decreased vision with age, fatigue, and recklessness. Proper markings for bicycles and jogging clothes are also stressed.

This would be a good introduction to the topic of retroreflectivity and nighttime driving for commissioners, high school students, and the general public. Produced in 2001 by the ATSSA in cooperation with USDOT/FHWA. ■

## Calendar

### ... 2001 .....

APWA Public Works Roundtable Discussions  
10/18—Ottawa  
11/15—Phillipsburg  
12/13—Abilene  
Call Mike Fraser at 785/826-7380

\*LTAP Course on Successful Supervision  
10/9—Fredonia  
10/10—Emporia  
10/16—Garden City  
10/17—Great Bend  
10/18—Wichita  
10/23—Colby  
10/24—Hays  
10/25—Salina  
10/30—Topeka

October 6-9  
League of Kansas Municipalities Annual Conference in Wichita, Ks.  
Call 785/354-9565

October 10  
National “Put the Brakes on Fatalities Day”

\*LTAP Course on Snow and Ice Control  
10/15—Garden City  
10/16—Oakley  
10/17—Hutchinson  
10/18—Chanute  
10/19—Topeka

November 1  
Kansas Asphalt Paving Conference in Lawrence, Ks.  
Call 887-404-KUCE

November 13-15  
2001 FHWA Local Roads & Streets Conference (Midwest) in Columbus, Ohio  
Call 614/292-2871 or visit [www.ohioltap.org](http://www.ohioltap.org)

November 18-20  
Kansas Association of Counties Annual Conference in Wichita, Ks.  
Call 785/272-2585

November 19  
Fall Meeting of the Kansas County Highway Association in Wichita, Ks.  
Call Jim Harris at 316/223-3800, ext. 32

### ... 2002 .....

\*Traffic Engineering Inspection School  
2/5-8—Hutchinson  
2/12-15—Lawrence

\*April 2  
NHI Course: Work Zone Traffic Control for Maintenance Operations on Rural Roads in Hutchinson, Ks.

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

Rose Lichtenberg  
LTAP Training Coordinator  
Kansas University Transportation Center  
1530 W. 15th Street, Room 2011  
Lawrence, KS 66045-7609  
785/864-2594

or visit our Web site at [www.kutc.ku.edu](http://www.kutc.ku.edu)

# Free Resources

Check off your selections, fill in the bottom portion, and return this form to:

KUTC Materials Request, 1530 W. 15th St., Room 2011, Lawrence, Kansas 66045 or fax to 785/864-3199

## Videotapes . . . . .

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

- "Get the Dirt"**  
8:44 minutes, by the Dig Safely project, 2000.
- Road Blading—Forest Service Style**  
18 minutes, by USDA-Forest Service.
- Making Small Rocks Out of Big Rocks**  
12 minutes, by USDA-Forest Service, 1998.
- Night Lights**  
13:45 minutes, by ATSSA, 2001.

## Publications . . . . .

You are free to keep these unless otherwise noted.

- A Citizen's Guide to Transportation Decisionmaking**  
(32 pages) Provides basic information for the general public on how transportation decisions are made at the federal, state, and local levels. Published by FHWA, 2001.
- 2001 KUTC Lending Library Catalog**  
(60 pages) Latest version of this resource for Kansas transportation departments. Lists hundreds of videotapes for loan and free publications on a variety of highway and transit topics. Also includes information on contacting other sources for transportation training resources.
- NDE Techbrief on Reliability of Visual Inspection for Highway Bridges, Volume 1 and Volume 2**  
(4 pages) A technical summary of a two-volume report which follows-up a national survey on bridge inspection. Published by FHWA, September 2001.

## Equipment . . . . .

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

- Jamar Technologies, Inc. (DB-400) Turning Movement Counter Board**  
A basic model for recording turning movements at intersections. The board is is lightweight and comes with its own case.
- Jamar Technologies, Inc. (TDC-8) Turning Movement Counter Board**  
Can be used to do turning movement counts, classification counts, gap studies, stop-delay studies, speed studies, and travel time studies. The board is is lightweight and comes with its own case.

## Order Form . . . . .

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\*For all international requests, the requester must pay postage. We will notify you of the postage cost and will send materials after receiving payment.

# Kansas LTAP

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

**KUTC, 1530 W. 15th St. #2011, Lawrence, KS, 66045**  
Call 785/864-5658 (fax 785/864-3199)  
[www.kutc.ku.edu](http://www.kutc.ku.edu)

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

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

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Director . . . . . Joe Lee  
Editor . . . . . Lisa Harris  
Contributing Writers . . . . . Rose Lichtenberg, Ira Allen



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