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The mission of Iowa's LTAP:

To foster a safe, efficient, environmentally sound transportation system by improving skills and knowledge of local transportation providers through training, technical assistance, and technology transfer, thus improving the quality of life for Iowans.

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Keeping up with Iowa's pavement management program

Omar Smadi,
Pavement Management Specialist, CTRE

THIS ARTICLE UPDATES local government agencies about current work and future plans for Iowa's pavement management program (IPMP). The program provides roadway data and computing tools to help agencies make cost-effective decisions about road repair, rehabilitation, and reconstruction. The IPMP covers all of Iowa's non-National Highway System (non-NHS), federal-aid eligible roads under state, county, and city jurisdictions.

Funded by and in cooperation with the Iowa DOT, CTRE began developing the IPMP in 1994 and implementing it in 1999. Major tasks—development of geographic information systems (GIS) database, collection of distress data, selection of pavement management software, and delivery of distress data—have been completed. Training workshops on the GIS tools and pavement management software, begun in 2000, continue into 2002.

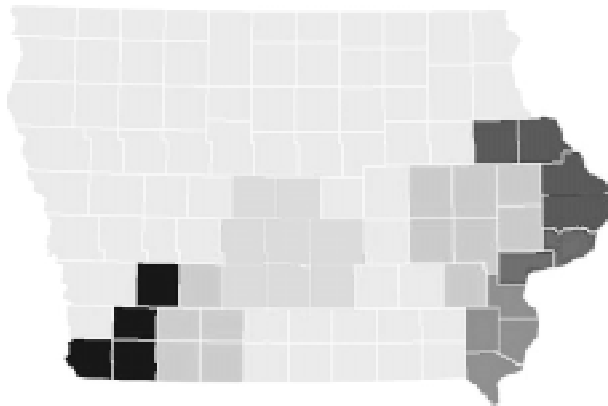
Delivering 2001 distress data

By the end of June 2002, roadway distress data collected in 2001 for local governmental agencies will be delivered on CD to participating cities, counties, metropolitan planning organizations (MPOs), and regional planning authorities (RPAs).

The map below illustrates the geographic areas of the state where 2001 distress data were collected.

Collecting distress data in 2002

This year we are beginning the fourth cycle of distress data collection. All 18 of Iowa's RPAs and eight MPOs are participating in the data collection effort.



The colored areas represent sections of the state for which distress data were collected in 2001.

During the previous three cycles, participating local government agencies were given the option of collecting distress data on *all* their paved miles—including non-federal aid eligible roads—for an extra cost. Fifty cities and counties have had distress data collected on their entire paved system, and several have indicated interest in doing so in 2002.

The Iowa DOT has now begun funding data collection on county non-federal aid paved roads (approximately 5,500 miles over a two-year period). The cost for collecting data on urban non-federal aid paved roads is \$55 per mile plus an additional cost for CTRE (based on the number of miles) to set up the system, manage data collection, and deliver the data.

Video logging

Working with the data collection vendor (Roadware Corporation), CTRE is making video-logging capabilities available to local transportation agencies. Roadware can provide video logs (one view or multiple views) of the right of way, as well as pavement images for roads where distress data are being collected.

Through its VISIDATA software, Roadware integrates video and data into one desktop application, providing the ideal vehicle for driving your network without leaving your office.

CTRE has an agreement with Roadware Corporation to provide this service to local transportation agencies participating in the IPMP at a cost of \$7.50 per mile for one right-of-way view and an additional \$10 per mile for the pavement images. A copy of the VISIDATA software can be purchased for \$500.

Together, the video logs, images, and VISIDATA software will provide transportation agencies with continuous coverage (160 images per mile) of their highway network integrated with the condition data that Roadware already collects.

Last year, eight agencies purchased video log information, and the data and images are already being used in presentations to city councils and county boards of supervisors.

dTIMS pavement management software

dTIMS software is a tool that allows local and regional agencies to use pavement condition information as the bases for determining and prioritizing

roadway maintenance and rehabilitation needs and developing cost-effective long-range plans and programs. Fifty cities, counties, MPOs, and RPAs have purchased dTIMS. The initial cost of the software is \$500, plus an additional \$700 per year for maintenance and update. We still have several copies available.

Training

Several training workshops covering the pavement management software and the IPMP GIS tools were conducted last year, and we are planning a very aggressive training program again in 2002. Training on dTIMS and GIS tools, including the newly developed section tool, will begin this summer.

We will also conduct training sessions for RPAs and MPOs in their offices. We conducted three such training sessions last year. A dTIMS users' group will also be formed to allow users to meet and discuss their experiences and insights.

IPMP website

The IPMP project website is under construction. It will include information about IPMP tasks and distress data collection, the 2002 workshop schedule, frequently asked questions, and other related information. It will also include an electronic request for information form. We will advertise the website in *Technology News* and through CTRE's website, www.ctre.iastate.edu.

What service do you need?

Use the form on this page to request information about specific IPMP services. •



**Iowa Pavement Management Program
Information Request Form**

Agency:

Contact person:

Phone number:

Fax number:

E-mail address:

Check IPMP services you're interested in

- Collecting distress data on urban non-federal aid roadways (urban only; the Iowa DOT is funding county data collection)
- Collecting video log information
- Purchasing dTIMS pavement management system software
- Information about 2002 workshops

Mail or fax the completed form to

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2901 S. Loop Drive, Suite 3100
Ames, IA 50010-8632
fax 515-294-0467

Or contact Omar Smadi directly,
515-294-7110, smadi@iastate.edu.

Roadware Corporation can provide video logs of the right of way (one view, left, or multiple views, below) .

LTAP Advisory Board

The people listed below help guide and direct the policies and activities of Iowa's Local Technical Assistance Program (LTAP). Contact any of the advisory board members to comment, make suggestions, or ask questions about any aspect of LTAP.

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Multidisciplinary approach to highway safety shown to work best

THOUGH MOST MOTOR vehicle crashes involve driver error of some kind, highway safety campaigns that target only driver safety awareness are generally ineffective at reducing the losses associated with highway crashes. These campaigns have the potential to greatly increase their effectiveness by adding other elements such as law enforcement, roadway engineering, and community-based initiatives to the campaign.

The Insurance Institute for Highway Safety (IIHS) and the Iowa Safety Management System (Iowa SMS) have each independently conducted a comprehensive review of existing research on the effectiveness of various types of highway safety education campaigns. These studies agree that driver education and public awareness programs *by themselves* are only marginally effective in improving highway safety. However, education efforts can be used with great success when carefully designed as part of a more comprehensive, integrated approach.

What doesn't work

Driver education campaigns—especially those focused on repetitive actions like obeying speed limits and stop signs and using safety belts—may increase drivers' knowledge but generally don't change the drivers' behavior, according to the studies.

Jon S. Vernick of the Johns Hopkins Center for Injury Research and Policy has even gone so far as to say, "There's no evidence that high school driver education reduces motor vehicle crash involvement rates for young drivers."

As for public awareness campaigns, "A billboard message by itself won't improve drivers or yield other safety benefits. Such messages waste resources and drain energy from effective highway safety approaches" (IIHS). The same could be said for bumper stickers, key chains, and radio and television advertisements directed at driver safety awareness.

One small part of the problem, according to the IIHS report, is that even if education efforts have a positive impact on the behavior of some drivers, "high-risk drivers—the ones who most need to change their behavior—are the most difficult group to influence."

Another popular explanation for why education efforts by themselves don't guarantee change is that a gain in knowledge does not directly or automatically correspond to a change in attitude or behavior.

What does work

The studies agree that the most effective approach to reducing highway crashes, crash injuries, and crash fatalities is a multidisciplinary one that combines vehicle and highway engineering, law enforcement, emergency response, *and* driver education efforts. For example, "while education to change driver behavior almost never is effective by itself, it's beneficial when it enhances the effectiveness

of traffic safety laws" (IIHS). Motorists are more likely to change their behavior in response to traffic laws than because of an education campaign, presumably because motorists "believe their driving skills will enable them to avoid collisions ... [but] their skills won't enable them to avoid a ticket."

The study sponsored by Iowa SMS generated a list of successful education approaches, as synthesized from numerous highway safety campaigns and evaluative studies. Here are a few:

- Campaigns are generally more effective when they combine mass media with community, small group, and individual activities.
- Campaigns are generally more effective when they address the existing beliefs and knowledge base of the target audience.
- Campaigns are generally more effective when they also direct their messages to parents, peers, and others who have direct interpersonal influence on the targeted individuals.
- Campaigns are generally more effective when they present educational messages in entertainment contexts.
- Campaigns are generally more effective when they emphasize immediate, high-probability incentives. Arousing fear by emphasizing the negative consequences of current poor driving behaviors has also been found to be highly to moderately successful as a campaign strategy.

A common theme in these successful approaches is that "mass" media messages are not as effective as campaigns that target a specific audience and integrate safety messages into many parts of the target individuals' lives—home, community, and entertainment, as well as school.

Iowa is already on track

Recommendations from these reports confirm the value of Iowa's multidisciplinary approach to improving traffic safety. Iowa SMS is founded on the four E's of highway safety—engineering, enforcement, education, and emergency response.

For more information

The IIHS *Status Report: What Works and Doesn't Work to Improve Highway Safety* (Vol. 36, No. 5, May 19, 2001) can be found at www.highwaysafety.org/srpdfs/sr3605.pdf.

The Iowa SMS *Communicating Highway Safety: What Works Report* (by Associate Professor Lulu Rodriguez, Greenlee School of Journalism and Communication, Iowa State University, February 2002) can be found at www.ctre.iastate.edu/reports/chs.pdf.

For additional information, contact Mary Stahlhut, Iowa SMS, 515-239-1169, mary.stahlhut@dot.state.ia.us. •

Look inside this “toolbox” for proven highway safety strategies

THE IOWA SAFETY MANAGEMENT SYSTEM (Iowa SMS) has recently completed a *Toolbox of Highway Safety Strategies*, available at www.IowaSMS.org. The toolbox is a compilation of problem explanations and potential solutions from many different disciplines with an interest in highway safety, all supported by comprehensive data.

The purpose of the toolbox is to assist and inspire Iowa’s highway safety professionals, policy makers, and citizens in implementing ways to improve highway safety, thereby reducing death, injury, and economic loss on Iowa’s roadway system.

What is Iowa SMS?

Iowa SMS is a multidisciplinary, multi-jurisdictional group of leaders committed to reducing the human suffering and economic losses that result from crashes on Iowa’s roadways.

The four E’s of highway safety—engineering, enforcement, education, and emergency response—are represented in Iowa SMS’s membership. Highway safety practitioners from the Iowa Departments of Public Safety and Transportation, in collaboration with individuals from many other public and private organizations, lead Iowa SMS efforts.

Developing the toolbox

An earlier incarnation of the toolbox, the *Iowa Strategic Highway Safety Draft Plan*, was modeled on AASHTO’s comprehensive plan to reduce vehicle-related fatalities and injuries on the nation’s highways.

Iowa SMS invited feedback on the Iowa draft plan in 1999. The ideas and concerns of the policy makers and general public who responded were incorporated into the current toolbox. Iowa SMS also utilized a public opinion survey (see sidebar on this page) and the multidisciplinary expertise of its members in the process of compiling the toolbox.

Focusing safety efforts

The Iowa SMS toolbox offers potential solutions to a wide range of highway safety problems in Iowa, grouped into five primary areas: (1) drivers, (2) other users, (3) highways, (4) emergency response, and (5) planning and management.

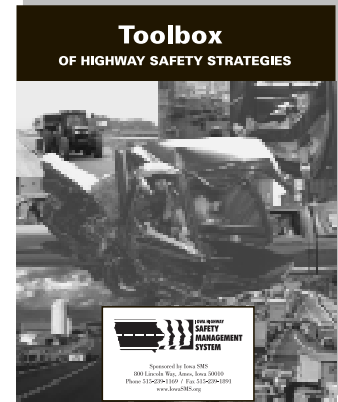
The “Drivers” section contains chapters on driver education, safety belt and child restraint usage, high-risk driving behaviors, driver licensing, and impaired driving. Young driver issues and older driver issues are emphasized. (See the figure of driver fatality rates by age, page 6.)

The “Other Users” section contains chapters on pedestrian safety, bicycle safety, school bus travel, public transit travel, motorcycle safety and awareness, large truck travel, and farm vehicle crashes.

The “Highways” section contains chapters on intersection safety, the consequences of leaving the road, head-on and across-median crashes, work zone safety, train-vehicle crashes, vehicle-animal crashes, and road safety audits. (See the chart of crash fatality causes, page 6.)

A section on “Emergency Response” discusses issues related to Iowa’s fire, rescue, and emergency medical services and needs.

SMS TOOLBOX . . . *continued on page 6*



Iowans’ opinions on highway safety goals and strategies

In 2000, Iowa SMS (see related article on this page) commissioned a public opinion survey of Iowans to help gauge the level of public support for a number of potential traffic safety strategies.

The results show that public opinion is in general agreement with the highway safety goals and strategies originally identified in the *Iowa Strategic Highway Safety Draft Plan* and now published in the Iowa SMS *Toolbox of Highway Safety Strategies* (see accompanying article).

The majority of the survey respondents reported moderate or high emphasis should be placed on each of the main goals identified by Iowa SMS in the next five years. There was also considerable support for implementing the specific strategies aimed at achieving these goals. In fact, nearly all of the proposed strategies received support by the majority of those surveyed.

The survey was conducted by the Center for Social and Behavioral Research at the University of Northern Iowa. Findings are included in the Iowa SMS toolbox.

The “Planning and Management” section includes chapters on information and decision support systems, intelligent transportation systems, safety management systems, and multidisciplinary safety teams.

Tools for action

The Iowa SMS toolbox identifies actions that could be considered for implementation over the next

10–20 years, as well as some specific implementation steps that could be completed sooner. The types of strategies presented in the toolbox include the following:

- law, policy, and enforcement changes
- education and public awareness to impact driver behavior
- roadway design changes

systemwide or in high-crash-incident locations/segments

- technology applied to assist drivers or enhance roadways
- emergency and medical service availability and delivery
- data collection and analysis
- planning and management

The Iowa SMS toolbox challenges Iowa’s extended

highway safety community to continue current effective programs, extend successful local initiatives statewide, and implement promising new initiatives. The document also encourages highway safety practitioners and advocates to develop partnerships among state and local governments, community groups, and the media to achieve a safer transportation system.

For more information

For more information about Iowa SMS or the toolbox, contact Mary Stahlhut, Iowa SMS coordinator, 515-239-1169, mary.stahlhut@dot.state.ia.us.

A summary of the toolbox, *Highway Safety Strategies for Iowa*, is available from Iowa SMS or at its website, www.IowaSMS.org. •

“Change is the only constant” — —

JUST AS MANY of us are becoming somewhat familiar with the new millennium edition of the MUTCD, the FHWA has released an extensive list of proposed revisions for comment. Most of the suggested revisions are not significant; they simply correct minor errors, improve clarity, and add consistency.

But some proposed revisions, if implemented, could have impacts on state and local agency budgets.

The Notice of Proposed Amendments for MUTCD Revision 2 was posted May 21, 2002, on the Federal Register under Docket No. FHWA-2001-11159. We suggest that Iowa agencies review Revision No. 2 closely and, if appropriate, comment on the proposed changes and additions.

The notice and suggested revisions can be found on the FHWA’s MUTCD website, <http://mutcd.fhwa.dot.gov>. Comments are due on or before August 19, 2002, and can be submitted electronically through the same website.

To help you navigate the 297 pages of Revision No. 2, the following article highlights several suggested revisions that could affect your agency. The list is not complete but will help you get a good start on your review.

Highlights of proposed revisions to the MUTCD

Introduction

The Introduction will include an *expanded* list of special compliance dates.

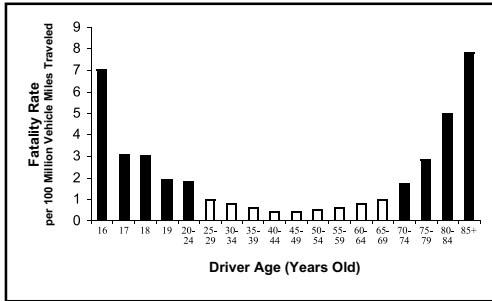
Part 1, General Provisions

- Section 1A.12 adds a new color (coral).
- Section 1A.13 includes several new definitions.

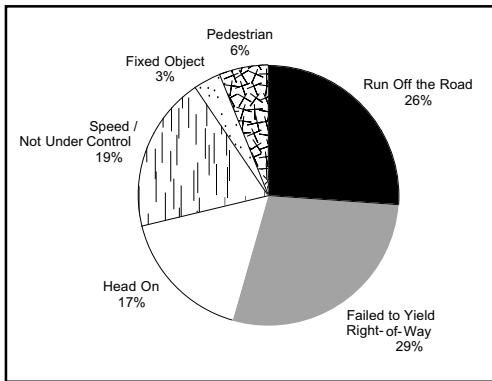
Part 2, Signs

Over 365 suggested revisions are listed for Part 2.

- Tables listing sign sizes are revised and expanded.
- Several new warning signs are added.
- Table 2C-4, Guidelines for Advance Placement of Warning Signs, is revised and expanded to comply with the 2001 AASHTO geometric design handbook.



National driver fatality rates by age form a classic “bathtub graph,” with the highest fatality rates experienced by the youngest and oldest drivers. 1996 data from the National Highway Traffic Safety Administration.



Data from the Iowa DOT Office of Traffic and Safety, such as this chart of the causes of Iowa crash fatalities (2000 crash data), can be helpful when considering potential highway safety strategies.

— — Extensive revisions to the MUTCD are proposed

- Section 2D.04 includes a prohibition for reducing spacing between letters or words on a sign to reduce sign size.
- Section 2D.38 includes guidance for increasing the size of overhead street name signs.
- Section 2D.39 (proposed new section) addresses advance street name signs.

Part 3, Markings

About 86 suggested revisions are listed for Part 3.

- Section 3B.16 significantly changes the use of “Stop” and “Yield” lines.
- Section 3B.17 significantly changes the use of crosswalk markings.

Part 4, Highway Traffic Signals

- Section 4A.02 adds several new definitions.
- Chapter 4C revises some traffic signal warrants.
- Section 4E.07 (proposed new section) addresses countdown pedestrian signals.
- Section 4F.04 (proposed new section) describes emergency beacons.
- Section 4L.03 (proposed new section) covers in-roadway lights at highway-rail crossings.

Part 5, Traffic Control Devices for Low Volume Roads

The most significant revisions reduce permissible sizes for several warning signs.

Part 6, Temporary Traffic Control

Some of the 250 changes and additions recommended for Part 6, could impact agency budgets. Many suggested revisions focus on incident management traffic control; accommodating pedestrians with disabilities, including the use of devices detectable by visually impaired people; and new standards and guidance for flagger stations. Several new sections are also added.

- Section 6D.01 should be reviewed closely for changes in accommodations for pedestrians with disabilities.
- Section 6D.02 addresses worker apparel and recommends compliance with the American National Standard for High-Visibility Safety Apparel from the American National Standards Institute (ANSI) and the International Safety Equipment Association (ISEA). This section also recommends that agencies designate a “competent person” to develop work zone safety plans and select proper apparel.

- Section 6E.02 includes similar but more stringent language regarding flagger apparel; flaggers are required to wear specific ISEA/ANSI approved garments.
- Table 6E-1, Distance of Flagger Station in Advance of the Work Space, is revised and expanded and has a new title.
- Section 6F.03 revises warning sign placement to comply with ADA guidelines and crashworthy features. Fluorescent coral is allowed as a sign color for incident management temporary traffic control.
- Sections 6F.55-Channelizing Devices, 6F.56-Cones, and 6F.59-Drums contain requirements for continuous detectability by persons using long canes.
- Section 6F.63 (proposed new section) covers longitudinal channelizing barricades.

Some proposed revisions, if implemented, could have impacts on state and local agency budgets. Comments are due by August 19, 2002.

- Section 6F.64 (proposed new section) discusses other channelizing devices.
- Section 6G.19 (proposed new section) describes temporary traffic control at night.
- Chapter 6H revises almost all of the typical applications, particularly those dealing with pedestrians with disabilities, TA-28 and TA-29.
- Chapter 6I (proposed new chapter) discusses traffic control through incident management areas.

Part 7, Traffic Controls for School Areas

- Table 7B-1, Size of School Area Signs and Plaques, revises and expands sizes of school signs/plaques.
- Section 7E.04 requires adult and student crossing guards to wear ISEA/ANSI compliant apparel.

Part 8, Traffic Controls for Highway-Rail Grade Crossings

Part 8 revises and expands definitions relating to highway-rail crossings.

- A new “Crossbuck Shield” sign, R15-9, is added.
- Section 8B.10 (proposed new section) describes use of “Stop Here on Red” sign.

Part 9, Traffic Controls for Bicycle Facilities

- Table 9B-1, Sign Sizes for Shared Use Paths, is retitled, revised, and expanded.
- Section 9C.05 (new proposed section) addresses a bicycle detector symbol. •

Unofficial and unauthorized traffic control devices

Tom McDonald, Safety Circuit Rider

AT A RECENT WORKSHOP, a question regarding removing unauthorized signs on the public right of way indicated some general unfamiliarity with the MUTCD and Iowa Code regarding this topic.

Public right of way

Section 1A.08 of the MUTCD, Authority for Placement of Traffic Control Devices, contains clear language regarding the status of unauthorized signs and all other unauthorized traffic control devices on the right of way: They are not allowed, and agencies should remove them when they are encountered.

On private property

The Code of Iowa Section 321.259, Unauthorized Signs, Signals, or Markings, goes further, prohibiting placement of signs that mimic or resemble official devices on *private property* as well. The Code allows agencies to remove such noncomplying devices without notice.

Special event signs

Allowances for political and special event signs are described in Sections 306.22 and 306.23, respectively, of the Code of Iowa. These signs may be placed on private property, with permission of the owner, for a stipulated time period prior and subsequent to an election or event.

Commercial developments

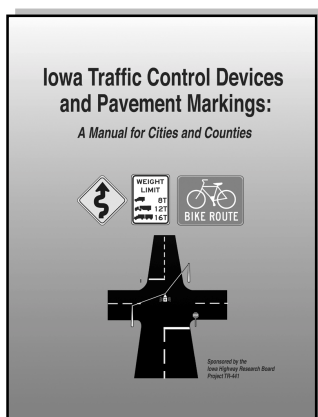
Iowa Code Sections 321.259, 321.321, and 321.345, as well as the Uniform Vehicle Code, Section 15-117, outline basic requirements for signs, signals, markings, and other devices in commercial developments. Generally, placement of STOP or other signs at development entrances is not considered the road agency's responsibility, but the Code of Iowa gives agencies such authority. It also stipulates that traffic control devices in such developments must conform to state specifications.

Iowa's manual: a helpful resource

The *Iowa Traffic Control Devices and Pavement Markings: A Manual for Cities and Counties*, Article C17.1, "Unofficial and Unauthorized Signs," addresses the placement of private signs and devices on or near the public right of way. Appendix L3.10 contains a sample political sign ordinance. Article C3.1, "Commercial Developments," discusses signage issues within developments.

While the MUTCD and Code of Iowa do describe some flexibility in placement and maintenance of certain signs and devices at specific times, one element is consistent and unwavering: Unofficial and unauthorized traffic control devices are *never* permissible on public rights of way, and agencies should remove them promptly. •

Editor's note: This article is part of a series about Iowa Traffic Control Devices and Pavement Markings: A Manual for Cities and Counties. The manual was funded by the Iowa Highway Research Board (TR-441) and supplements the MUTCD. It is available online, www.ctre.iastate.edu/pubs/itcd/index.htm. Or contact Tom McDonald, 515-294-6384, tmcdonal@iastate.edu.



Iowa Traffic Control and Safety Association (ITCSA)

ITCSA is a nonprofit, multidisciplinary professional organization that encourages excellence in the four E's: engineering, enforcement, education, and emergency response.

Iowa Association of Safety Education (IASE)

IASE is a nonprofit, professional organization of driver educators in Iowa. IASE helps its members learn the techniques, information, and technologies they need to prepare safe, responsible drivers.

ITCSA and IASE sponsor joint annual conference

ITCSA/IASE Iowa Traffic Safety Conference
October 31–November 1, 2002
Johnston, Iowa

Embracing the philosophy that multidisciplinary approaches to traffic safety are the most effective (see page 4), ITCSA and IASE are combining their annual conferences into one dynamic, comprehensive event in fall 2002.

This will be a unique opportunity for professionals in all traffic safety disciplines to meet, exchange ideas and information, and discover opportunities for working together. Agenda highlights include the following:

- legislative updates

- weather and road condition reporting
- new vehicle technology
- graduated driver licensing
- older driver issues
- traffic engineering studies
- new classroom techniques
- Access-ALAS

In addition, vendors will showcase a variety of traffic safety related products and technologies.

Registration materials will soon be mailed and posted on the web: www.ctre.iastate.edu/itcsa or www.ctre.iastate.edu/iase. •

Liner installation tools

AS THE PRICE of large excavations and road closings rises, the Johnson County Secondary Roads Department has been lining existing culverts with plastic and filling the void with flowable fill. The problem was that culvert liners were nearly impossible to screw together in an excavated site.

Johnson County's culvert and drainage crew developed installation tools that have cut the department's liner installation time from 4–6 hours to 30 minutes. The first section of liner is slid inside the old structure and held in place with a strap wrench. The next section is suspended by a cradle, which is attached to the excavator, and threaded into the first section. A second strap wrench helps twist the second section into place.

The strap wrenches are made of 2-inch square tubing and 2-inch tie-down straps. The cradle was built of two 4-inch baler straps and two old conveyor rollers with the sides of old disc blades to keep the straps centered. The straps are mounted to a 12-foot 4" x 4" and suspended by a chain on the excavator.

Editor's note: The liner installation tool is one of several winning innovations from the "Better Mousetrap" competition at the Iowa Maintenance Expo in September 2001. We're highlighting one of the winners in each issue of Technology News. For information about other winning "mousetraps," see CTRE's website: www.ctre.iastate.edu (under "CTRE News").

For information about entering the September 2002 "Better Mousetrap" competition, see the cover of this issue.



Strap wrenches help twist the liner sections together.

For more information about the liner installation tools, contact Pat Zimmerman, culvert and drainage crew leader, Johnson County, 319-356-6046. •

The Johnson County culvert and drainage crew uses a cradle to maneuver and place a culvert liner.

Management wisdom

FOLLOWING these simple suggestions for supervisors can make the difference between being just a “boss” or becoming an effective leader:

- Give your employees a good reputation to live up to.
- Express your appreciation, often.
- Do not criticize, condemn, or complain.
- Talk about your own mistakes before pointing out another’s.

- Sincerely praise even the slightest improvements.
- Ask questions and listen to employees’ suggestions.

These bits of management wisdom were submitted by William C. Evans, LTAP manager, FHWA. For more good ideas regarding effective leadership, go to his source: Dale Carnegie’s *How to Win Friends and Influence People*. •

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