

- 2 Optimizing traffic signal phases for safety
- 3 Testing new pavement overlay
- 4 Drainage law and transportation: a manual for Iowa
- 4 Retrofitting an LED pedestrian signal
- 5 Understanding the basics of concrete mixture chemistry
- 6 Developing a rural roadside safety program
- 8 Hello and goodbye to LTAP advisory board members
- 9 Iowa's first Roads Scholars recognized
- 10 Stanley L. Ring Memorial Library: new acquisitions
- 11 Conference calendar

Acronyms in this issue

AASHTO	American Association of State Highway and Transportation Officials	ISU	Iowa State University
CTRE	Center for Transportation Research and Education	LTAP	Local Technical Assistance Program
FHWA	Federal Highway Administration	MUTCD	Manual on Uniform Traffic Control Devices
Iowa DOT	Iowa Department of Transportation	IASE	Iowa Associates of Safety Education
		ITCSA	Iowa Traffic Control and Safety Association

Iowa is making TraCS nationwide

TRACS (Traffic and Criminal Software) is a flexible and easy-to-use software package for collecting and reporting crash and other data. TraCS was developed in Iowa and now is being adapted and used across the country as part of the National Model.

What's the National Model?

The National Model for the Statewide Application of Data Collection and Management Technology to Improve Highway Safety, known simply as “the National Model,” is a model program for sharing information, resources, and technologies to improve highway safety.

The National Model

- minimizes disruption to traffic caused by roadway crashes and incidents;
- increases officer efficiency and safety;
- facilitates the rapid deployment of first responders;
- improves crash and roadway incident data quality and shortens data collection time;
- transmits data and images from both local and state law enforcement agencies to administrative offices in order to eliminate redundant data entry and expedite data processing;
- delivers an integrated data management solution that is capable of successfully incorporating multiple data sources and data types; and

- streamlines the communication of safety information to key stakeholders and extends the use of this information for safety and law enforcement programs.

TraCS is the National Model's critical field data collection component.

TraCS continued on page 2

Correction

In the March–April article “Enhanced sign for safer moving operations,” we incorrectly used the word “border” to describe the fluorescent yellow green sheeting used as a background behind the orange construction sign. The sign is mounted on a piece of aluminum. The aluminum has a six-inch fluorescent yellow green border, which is visible around the outside edges of the sign.



Preparation of this newsletter was financed through LTAP, a nationwide effort financed jointly in Iowa by the FHWA and the Iowa DOT. Iowa's LTAP is housed and administered at ISU's Center for Transportation Research and Education (CTRE).

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.

Subscriptions to *Technology News* are free. We welcome readers' comments, questions, and suggestions. To subscribe, or to obtain permission to reprint articles, contact the editor.

ISU Research Park
2901 S. Loop Drive, Suite 3100
Ames, Iowa 50010-8632
Telephone: 515-294-8103
Fax: 515-294-0467
www.ctre.iastate.edu/

Stephen J. Andrie
Director of CTRE
andrie@iastate.edu

Duane Smith
Director of Iowa LTAP
desmith@iastate.edu

Marcia Brink
Editor
mbrink@iastate.edu

Tom McDonald
Safety Circuit Rider
tmcdonal@iastate.edu

Lori Wildeman
Program Coordinator
lwild@iastate.edu

Mark Anderson-Wilk
Michele Regenold
Brett Hansen
Contributing Writers

Any reference to a commercial organization or product in this newsletter is intended for informational purposes only and not as an endorsement. The opinions, findings, or recommendations expressed here do not necessarily reflect the views of LTAP sponsors. The materials herein are provided for general information, and neither LTAP nor its sponsors represent that these materials are adequate for the purposes of the user without appropriate expert advice. ISU makes no representations or warranties, express or implied, as to the accuracy of any information herein and disclaims liability for any inaccuracies.

Iowa State University and the Center for Transportation Research and Education provide equal opportunities and comply with requirements of the Americans with the Disabilities Act in programs and employment. Call the Affirmative Action Office, 515-294-7612, to report discrimination.



TraCS continued from page 1

Advantages of TraCS over traditional reporting

What is the advantage of TraCS over traditional crash data reporting? Electronic reporting such as that used by TraCS saves time, eliminates data entry duplication, and greatly improves data quality.

Before TraCS, reporting using paper methods often took 12 to 18 months from crash date for crash data to be input, cleaned up, and available for analysis. Using TraCS, the data are in a usable electronic database in as little as eight hours.

TraCS success in Iowa

TraCS was developed by the Iowa DOT, with support from the Iowa Department of Public Safety, FHWA, National Highway Traffic Safety Administration, Federal Motor Carrier Safety Administration, and others. CTRE developed the crash location component of the software package.

Within the state, 213 agencies—including 156 police departments, 55 sheriffs' offices, the Iowa State Patrol,

and Iowa DOT motor vehicle enforcement officers—use TraCS. Each year in Iowa, about 115,000 citations (20 percent), 50,000 DOT inspections (100 percent), and 30,000 crash reports (55 percent) are completed using TraCS.

Cross-country customization

As a key component of the National Model, TraCS has also been adapted for use outside the lead state of Iowa. TraCS is currently being used in 19 states plus the Virgin Islands.

TraCS has successfully migrated to other states because the software is designed to be customizable. As additional states decide to use TraCS, they design and create their own state or local forms as needed.

For more information

For more information, contact Mary Jensen, TraCS program manager, 515-237-3235, mary.jensen@dot.state.ia.us, or visit www.dot.state.ia.us/natmodel/. •

Optimizing traffic signal phases for safety

USING INSTITUTE of Transportation Engineers (ITE) formulas to calculate the duration of yellow and all-red traffic signal phases may help reduce crashes at intersections.

Generally, a yellow signal phase should be followed by a brief period in which all signals at the intersection are red. This allows motorists entering the intersection on green or yellow plenty of time to clear the intersection before the signals for cross traffic turn green.

But just how long should the yellow and all-red phases last?

Traffic engineers traditionally rely on MUTCD guidelines (Section 4D.10), various traffic studies, and their own best judgment to set signal phase durations. But the results are fairly subjective.

In contrast, formulas for phase duration in the *ITE Traffic Engineering Handbook* are based on quantifiable variables like vehicle approach speed, reaction time, and approach grade. Any traffic engineer using these formulas to calculate phase durations for a particular intersection should arrive at the same durations.

In 2000, Richard A. Retting, Janella F. Chapline, and Allan F. Williams (Insurance Institute for Highway

Safety) re-timed yellow and all-red traffic signal phase durations at several New York intersections according to ITE formulas. When they compared before-and-after crash rates, researchers discovered that reportable crashes at the re-timed intersections were reduced by eight percent. In addition, crashes involving pedestrians and bicyclists were reduced by 37 percent relative to a control group of intersections.

For more information

See the Insurance Institute for Highway Safety's April 28, 2001, issue of *Status Report*, www.hwysafety.org/sr.htm. For a copy of Retting's report, "Changes in Crash Risk Following Re-Timing of Traffic Signal Change Intervals," write to Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201.

For more information on the ITE recommendations for signal timing, consult the *ITE Traffic Engineering Handbook (5th Ed.)* pp. 480–482. This publication is available on loan from the Stan Ring Memorial Library, Item P 792. Contact Jim Hogan, library coordinator, 515-294-9481, hoganj@iastate.edu. •