

## MUTCD distribution

THE MILLENNIUM edition of the MUTCD is accessible on the web at <http://mutcd.fhwa.dot.gov>, but the document is still not final so downloading the 1,000 pages might not be advisable at this time. In addition, it is expected that several pages of errata will be published after final adoption in the near future.

For actual distribution, the Federal Highway Administration expects to furnish two hard copies of the manual to their regional offices and one copy to each state department of transportation. All other distribution will be over the Internet or through organizations such as the American Traffic Safety Services Association, which will publish the full manual. Cost of hard copies is expected to be approximately \$100 each. A copy of the manual will also be available for loan through CTRE's LTAP library. •

## Determining capacity of Iowa's precast concrete deck bridges

### This article is third in a series exploring low-cost bridge replacement alternatives.

SEVERAL HUNDRED precast concrete deck bridges, which were built in the mid 1950s, are still in service on Iowa's secondary roads, and many of these are experiencing significant deterioration. Typically that deterioration is in the form of longitudinal cracking at the level of the reinforcement, says Terry Wipf, Iowa State University professor of civil and construction engineering. When deterioration like that is discovered, a load limit needs to be posted on the bridge.

Because of the loss of bond strength due to this deterioration, engineers can't accurately estimate the capacity of a deteriorated precast concrete deck bridge. There aren't any methods for determining the effect of the reduced bond strength on the flexural strength of the bridge. However Wipf, Wayne Klaiber, an ISU professor of civil engineering, and Ann Sardo, an assistant professor of civil engineering, are conducting research that may provide some answers for this particular type of bridge.

## An Iowa guide to traffic control devices and pavement markings

THE MUTCD is the ultimate authority for using and placing traffic control devices and pavement markings. Even in its new, more convenient format, however, Iowa's cities and counties may find the millennium edition of the MUTCD bulky, cumbersome, and full of information they don't need. Under sponsorship of the Iowa Highway Research Board (TR-441), CTRE is therefore developing a streamlined guide specifically for Iowa's local governments.

*Iowa Traffic Control Devices and Pavement Markings: A Manual for Cities and Counties*, due for publication late this spring, will comply with the millennium edition of the MUTCD. •

Wipf, Klaiber, and Sardo are currently evaluating the strength of deteriorated precast concrete deck bridges through field and laboratory testing. The ultimate purpose of their research is to determine the capacity of deteriorated bridges in order to a) provide data and/or criteria for rating such bridges and b) investigate methods for strengthening these bridges in order to extend their service lives.

The field testing portion of the project was completed last summer; four different bridges were tested. Diagnostic load testing was completed to determine the bridges' capacities.

After the field testing, several of the precast units from a bridge in Cedar County near Bennett, Iowa, were transported to ISU for laboratory testing. Some of the elements were tested to failure to determine their flexural strength. Four of the precast elements were reassembled and service load tested to learn more about the load distribution in this type of bridge. Currently a post-tensioning strengthening system is being tested on the laboratory bridge.

Once this research project (Iowa Highway Research Board project TR-440) is complete at the end of this year, *Technology News* will publish the results. •

### LTAP Advisory Board

The people listed below help guide and direct the policies and activities of the Center for Transportation Research and Education's Local Technical Assistance Program (LTAP). The board meets at least annually.

Contact any of the advisory committee members to comment, make suggestions, or ask questions about any aspect of LTAP.

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