

## New standards for crashworthy work zone devices

New tests show that several types of work zone devices can make fixed object crashes more severe. Many barricades and most portable sign supports with signs made from rigid materials are uncrashworthy under *NCHRP 350* standards adopted by the Federal Highway Administration.



The A-frame barricade and rigid sign do not meet the new crashworthy requirements.



This X-footprint support and roll-up sign are crashworthy under FHWA's new standards.

"Minivans, pickup trucks, and 4WD vehicles are becoming more common, and crash tests show problems. Some work zone devices are penetrating the windshields or getting sent into a work area in a crash," says Tom Notbohm, Traffic Operations Engineer of the WisDOT Bureau of Highway Operations. Improving work zone devices is part of the FHWA's Congressional mandate under the 1991 ISTEA act to make all roadside hardware devices more crashworthy.

Local street and highway agencies, road contractors, and utilities should start phasing out uncrashworthy items now and begin specing and ordering devices that meet the standards. All new category 2 devices bought after October 1, 2000 for use on the National High-

way System must be crashworthy. This category includes barricades, portable sign supports, and drums with lights.

Since the guidelines allow agencies to use up current stocks, full compliance dates in Wisconsin are two to five years hence, depending on the type of device and whether it is used on national or state highway system roads. Tentative Wisconsin sunset dates are:

- Barricades—January 1, 2002 for state-let contracts on National Highway System (NHS) routes; January 1, 2004 on all state routes and contracts.
- Portable signs supports—January 1, 2003 for state-let contracts on NHS routes; January 1, 2005 on all state routes and contracts.
- Maintenance and utility work on state highways—dates are not firm yet, but will be similar.

The requirement does not apply at the local level unless the agency is doing work on a National Highway System or state route. However, FHWA strongly recommends following these standards on other routes for both safety and liability reasons. "Liability may be an issue if an agency has a different standard on some roads than others," Notbohm says.

Sign trailers currently used by counties and others don't meet the crash test requirements. "We recognize that the trailers have safety benefits for the work crews," says Notbohm. "We want to continue allowing the use of existing trailers for several more years, but we are recom-

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## Resources

Materials listed are available from the Wis. T.I.C. unless otherwise noted. To get your copy call 800/442-4615 or use the form on page 7. Videotapes are loaned free through Wisconsin County Extension Offices.

**PROPOSED AMENDMENTS to the Manual on Uniform Traffic Control Devices (MUTCD), Part 5, Traffic Control Devices for Low Volume Rural Roads**, Federal Register and FHWA, December 1999, 22 pages. The Federal Highway Administration is proposing to add a new Part 5 for low volume rural roads. The intent of new Part 5 is to provide in one location in the *MUTCD* the standards and guidance that are unique to low volume rural roads.

Proposed Part 5 defines low volume roads as both paved and unpaved roads outside of corporate limits that carry traffic volumes with an annual average of less than 200 vehicles per day. The proposal includes Standards and Guidance for sign sizes and placement, regulatory signs, warning signs, pavement markings, traffic control for highway-railroad grade crossings, and

temporary traffic control. It also includes options for low volume roads in the sections concerning sign placement, stop and yield sign warrants, and centerline pavement markings. **FHWA is accepting comments until June 30, 2000.**

**Roadway Drainage** The materials below were distributed at T.I.C.'s fall Roadway Drainage Workshops. They offer valuable advice and information on how to identify the causes of common roadway and roadside drainage problems and some practical ways to solve them. Available in limited quantity for those not able to attend.

**Roadway and Roadside Drainage** by David P. Orr, P.E., Cornell Local Roads Program, Publication No. 98-5, 88 pp. Workshop manual that includes information on soils, road construction materials, subsurface water problems and their correction, use of subsurface drains, culverts materials, sizes, and installation, ditches, side slopes, and erosion control.

**The Excavator's Guide to Diggers Hotline** by Wisconsin Diggers Hotline. A complete guide for anyone planning to excavate in the public right-of-way. Covers notification procedures, phone numbers, excavator responsibilities, and state law on excavation notification.

**Municipal Roadway Projects Near Wetlands and Navigable Streams**, Wis. DNR, Nov. 1999, 3 pp. Helpful fact-sheet on regulations local agencies must follow when doing road and drainage construction and maintenance work near wetlands and navigable streams. Includes a handy list of DNR transportation liaison contacts by county.

**Replacing culverts, cleaning ditches? Plan Ahead** An article from *Crossroads*, Summer 1996, on problems that can be caused by improper ditching and poor culvert installation and how several Wisconsin local highway departments have worked with DNR to meet state requirements in a cost-effective way.

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mending against purchasing new ones." Two states successfully tested light weight trailers with small wheels.

Several manufacturers offer barricades and sign supports that meet the crash standards. These are listed on FHWA's web site (see below).



*Sign trailers like these don't meet the new standards. New trailers should not be acquired, but existing ones may continue in use for a few years.*

All manufacturers of work zone devices must certify their crash-worthiness in writing.

Agencies making their own devices can find generic designs and specifications on the FHWA website. Most of the generic designs are for Type III barricades (three rails to close a lane or road).

By May Notbohm expects to have purchasing recommendations on portable sign supports with roll-up signs based on county evaluations of features, ease of setup, durability, ability to hold the sign upright, and other factors.

*For more information contact Tom Notbohm, 608/266-0982, email: thomas.notbohm@dot.state.wi.us. Designs are listed on the FHWA web site: <http://safety.fhwa.dot.gov/roadside/>*

**Pulverize for longer pavement life** *from page 1*

Costs for pulverization, cracking and seating, and leveler courses vary with the contract bid, Blazek says. On three recent contracts, milling cost \$9.60, \$8.35, and \$8.32 per ton. Cracking and seating cost \$.41, \$1.15, and \$.35 per square yard. Binder courses with MV mix type asphalt cost \$26.75, \$29.85 and \$27.75 per ton.

All contracts pay separately on a unit price basis for hauling away pulverized material. "That way, if we estimate amounts wrong on one street we pay only for the amount the contractor hauls out," says Blazek. Streets department staff use historical records, observe curb height, and sometimes take cores to help them make tonnage estimates.

Rather than trying to reuse or salvage their own pulverized material, Racine's bid specs allow using recycled asphalt mix for either course. "The contractor's logistics aren't such that they can pick up and re-mix and lay the same material," says Blazek. "They stockpile it, then bring us virgin or recycled material that is not necessarily ours."

Pulverizing in urban areas has its challenges, Blazek, says, and may cost a little more, but is worth it. "We've been doing it at least 10 years and have found it to be very effective. We get 30% to 50% longer life out of the pavement," he says.

*For more information on pulverization, contact John Edelbeck, Waupaca, at 715/258- 44220, email: jaewaup@yahoo.com; or James Blazek, Racine, at 262/636-9191, email: jblazek@cityofracine.org*

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