

## **Category IV Work Zone Devices - Introduction**

Our office memorandum “Crashworthy Work Zone Devices as of October 1, 2000” (WZ-45) dated September 13, 2000 (<http://safety.fhwa.dot.gov/fourthlevel/hardware/workzone/pdf/wz-45.pdf>), postponed the decision date for trailer mounted work zone devices such as changeable message signs, flashing arrow panels, portable traffic signals, temporary work zone lighting, etc. The decision whether to require these devices to be crash tested was extended to October 1, 2003, pending additional study. That study, conducted for the Federal Highway Administration using the Highway Safety Information System, has been completed and shows no appreciable increase in the number of crashes into these devices since the original study was completed in 1995.

### **Policy**

The above leads us to extend our present policy of encouraging, though not mandating, crashworthy installations. A determination of a requirement for crash testing will be delayed until October 1, 2006. FHWA will continue to monitor the in-service crash performance of Category IV devices and consider whether to establish crash test requirements for devices in that category. If your state has studied crashes of Category IV devices we would appreciate receiving a copy or contact information. We will also encourage the design and testing of crashworthy versions

In the interim, as should be done with these devices even if proven crashworthy, they should be positioned and operated in as safe a manner as practical. Category IV work zone devices should be delineated or shielded. This would mean, where reasonable, placing them behind crashworthy barriers or shielding them with a crash cushion. For devices that the highway agency or contractor has decided are appropriate to operate unshielded within the clear zone, they should be delineated with retroreflective channelizing devices as to be highly visible, both in and out of service. They should be removed from the clear zone as soon as practicable after they are no longer needed.

FHWA Division Offices may wish to review their state DOT’s policies and practices for dealing with Category IV devices, and work with the state to improve compliance where necessary. Guidelines for placing and delineating these work zone trailers may be found in MUTCD Sections 6F-52 and 6F-53, AASHTO Roadside Design Guide, Chapter 9, Section 9.4.2.4 and in the FHWA Acceptance Letter WZ-45. The North Carolina DOT Policy for Use of Changeable Message Signs that we excerpted in that WZ-45 memo may still be found on the Internet at:

<http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/docs/cmsopera.pdf>

### **Industry activities**

One manufacturer acted upon our suggestion to develop crashworthy Category IV devices. Road Systems, Inc., developed and crash tested a three-line changeable message sign meeting NCHRP Report 350 Test Level 3 guidelines. The crash testing of a conventional CMS and the redesigned, crashworthy CMS may be seen on the Internet at

<http://www.roadsystems.com/tac.htm>. We encourage additional manufacturers to redesign their devices to improve crashworthiness.

### **Grandfathering of older Work Zone devices**

The August 28, 1998, memorandum between FHWA and AASHTO (<http://safety.fhwa.dot.gov/fourthlevel/memo.htm>) established October 1, 2000, as the deadline for Category II devices such as portable sign stands, and Type I, II, and III barricades. Category II devices for use on the NHS purchased after that date must be in compliance with NCHRP Report 350 and FHWA crashworthiness guidelines. Untested devices already in contractors' or states' inventory were to be allowed to remain in use until "they complete their normal service life." FHWA did not set a deadline for removal of older, untested devices, although many states did set their own deadline dates, mostly in 2002 or 2003.

At the September 2003 meeting of the AASHTO/AGC/ARTBA Joint Committee Task Force 13 - Standardization of Highway and Bridge Hardware we heard an industry member's presentation on the lengths to which some contractors or vendors are going to keep these older devices in use. Major components of barricades and sign stands are being replaced when damaged in order to keep the obsolete devices in use. FHWA believes this violates the spirit of the FHWA/AASHTO agreement.

Work zone devices that suffer major damage from a crash or construction site incident have reached the end of their "normal service life." A portable sign stand supporting an aluminum sign that is scratched or dented to the extent that the sign blank needs to be refurbished is another example of a device that has reached the end of its normal service life. If your state has not set a "drop dead" date for removal of non-crashworthy Category II work zone devices, or established inspection criteria for determining when an older device has reached the end of its normal service life, they should be encouraged to do so. Note that the MUTCD has established January 17, 2005, as an implementation date for crashworthy work zone traffic control devices (<http://mutcd.fhwa.dot.gov/HTM/2003/intro/intro.htm>) on all highways. This would be a suitable "drop-dead" date for obsolete devices on the NHS as well.