Highway Incident Management
And Emergency Traffic Control
Equipment Guidelines

With additional traffic on Minnesota highways, emergency personnel are responding to an increasing number of highway incidents. Every year there are about 100,000 traffic crashes in Minnesota with 200,000 other roadway incidents that require emergency personnel to respond. An increasing number of emergency personnel are finding themselves to be the victims of secondary crashes when responding to roadway incidents. In the past seven years, six emergency responders have been killed at highway incident scenes.

In order to protect emergency response personnel at the scene of an incident and protect the motoring public from secondary crashes, fire departments are looking to improve traffic flow around an incident with additional traffic control equipment. To help departments that are looking to purchase emergency traffic control equipment, the Minnesota Department of Transportation (Mn/DOT), the Minnesota State Patrol, and the Minnesota State Fire Marshal’s Office are sending out this letter to explain the standards for traffic control devices.

The Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) was established to provide uniform standard for all traffic control devices used on Minnesota roadways. The US DOT publishes the federal MUTCD. The Minnesota MUTCD is similar to the federal manual but also includes additions that reflect Minnesota State laws or policies. Both the state and federal MUTCD have standards for emergency traffic control devices such as roll up signs and traffic cones.

Fluorescent pink signs were introduced in the federal MUTCD in 2003, however the Minnesota Committee decided that pink signs would not be adopted into the MN MUTCD. Vendors may be advising local fire departments that they should buy pink signs, but departments should be aware that these signs are not approved for use on any Minnesota streets or highways.

Fire departments can still purchase orange roll up signs if they choose but they must meet the minimum requirements. Minnesota requires all signs including roll-up signs to be retroreflective. Some vendors still sell mesh and non-retroreflective signs that do not meet the requirements of the MN MUTCD. Minnesota also requires all temporary devices to meet crash requirements found in NCHRP Report 350. Not all sign supports meet these requirements.

The two standard channelizers for incidents are cones and tubular markers. The MN MUTCD has specific requirements that are different than federal requirements. For example, Minnesota requires a 4"x36" tubular marker on high speed highways compared to the federal 2"x28". Cones and tubular markers are also required to be retroreflective. Cones should be used for marking hazards such as a fire truck or for closing highway lanes. Tubular markers should only be used for delineating traffic lanes and should not be used for marking hazards.
Included with this memo are graphics that show the standards for rollup signs and standard channelizers. The three state agencies of Mn/DOT, the State Patrol, and the State Fire Marshal’s office in addition to Maple Grove Fire Department are developing a statewide policy and training class on responding to highway incidents. To assist with the development of this statewide policy, the Responder Safety Committee was formed. This committee is made up of representatives of Minnesota law enforcement, EMS, fire service, and towing companies. Additional information on this policy, emergency traffic control, and the training classes will be available at a later date. Any questions on emergency traffic control or highway incident management can be directed to Brian Kary, Mn/DOT Incident Management Engineer, at 651-634-5268 or brian.kary@dot.state.mn.us.
Typical Sign Messages that may be displayed on Portable Roll-up Signs during Temporary Traffic Control situations such as Road Work or Incident Management. Refer to Mn/DOT’s Standard Sign Summary for a complete listing of allowable signs.

**MnMUTCD 6F.15.1 Roll-Up Warning Signs**
Roll-up warning signs may be used to provide advance warning signaling for temporary traffic control zones.

Roll-up warning signs shall have a black legend on a reflectorized orange or reflectorized fluorescent orange background. They may be used for daytime or nighttime only when workers are present to monitor the signs.

The mounting height of roll-up signs shall conform to the standards as shown in Section 6F.3 (see below).

A 0.3 m (1 foot) minimum height will be allowed for rollup warning signs, but the signs should be mounted higher in order to improve their visibility.

**MnMUTCD 6F.3 Sign Placement**
All sign supports shall be crashworthy. Signs installed on barricades, barricade sign combinations, and all other portable supports shall be crashworthy. Crashworthiness and crash testing information on devices described in MnMUTCD Part 6 are found in AASHTO’s “Roadside Design Guide” (see Section 1A.11).

All signs installed on barricades, or other portable supports, shall be no less than 0.3 m (1 ft) above the traveled way. In addition, regulatory signs installed on barricades or other portable supports shall be installed so that the center of the sign or sign assembly is at least 1.2 m (4 ft) above the traveled way.
**Recommended Size for Tubular Markers and Cones for Day-time/Night-time & Low Speed/High Speed Temporary Traffic Control for Road Work and Incident Management**

**MnMUTCD 6F.56 Cones**

Cones shall be predominantly orange and shall be made of a material that can be struck without causing damage to the impacting vehicle (see Figure 6F-4). For daytime and low-speed roadways, cones shall be not less than 450 mm (18 in) in height. When cones are used on freeways and other high-speed highways or at night on all highways, or when more conspicuous guidance is needed, cones shall be a minimum of 700 mm (28 in) in height.

For nighttime use, cones shall be retroreflectORIZED or equipped with lighting devices for maximum visibility. RetroreflectORIZATION of 700 mm (28 in) or larger cones shall be provided by a white band 150 mm (6 in) wide located 75 to 100 mm (3 to 4 in) from the top of the cone and an additional 100 mm (4 in) wide white band approximately 50 mm (2 in) below the 150 mm (6 in) band. Cones shall not be used on unattended work sites.

**MnMUTCD 6F.57 Tubular Markers**

Tubular markers are portable devices constructed with weighted bases, or weights such as sandbag rings that can be dropped over the tubes and onto the base to provide added stability. Tubular markers shall be tubular, shall be predominantly orange, and shall be made of a material that can be struck without causing damage to the impacting vehicle (see Figure 6F-4). For daytime and low-speed roadways, tubular markers shall not be less than 450 mm (18 in) high and 50 mm (2 in) in diameter. When tubular markers are used on freeways and other high-speed highways or at night on all highways, or when more conspicuous guidance is needed, tubular markers shall be a minimum of 900 mm (36 in) high and 100 mm (4 in) in diameter.

For nighttime use, tubular markers shall be retroreflectORIZED or equipped with lighting devices for maximum visibility. RetroreflectORIZATION of 900 mm (36 in) or larger tubular markers shall be provided by a white band 100 mm (4 in) wide located 75 to 100 mm (3 to 4 in) from the top of the marker and an additional 100 mm (4 in) wide white band approximately 50 mm (2 in) below the 100 mm (4 in) band.

Tubular markers shall not be used to mark hazards or close roadways.