

APPROVED BY NCUTCD COUNCIL ON JANUARY 18, 2007

**National Committee on Uniform Traffic Control Devices  
TECHNICAL COMMITTEE RECOMMENDATION TO SPONSORS**

**TECHNICAL COMMITTEE : Regulatory/Warning Sign TC**

**TASK FORCE:** FHWA 2006 New issues –Issue # 25

**DATE OF ACTION:** 6-4-06 TASK FORCE , Revised 6-10-06, revised 6-15-06,  
Approved by RWSTC, June 29, 2006, **REVISED 12-23-06 FOLLOWING SPONSOR  
COMMENTS**

**REQUEST NUMBER**

**TOPIC:** Mounting Height of Wrong Way signing at Freeway and Expressway Entrance Ramps

**ORIGIN OF REQUEST:** NPA R/W Sign issues – FHWA and California Traffic Safety Engineer (FHWA – California Division)

**AFFECTED PORTIONS OF THE MUTCD:** 2A.18, Mounting Height

**PROBLEM STATEMENT:** Section 2A.18 Mounting Height requires that the minimum mounting height of signs be 5' for rural districts and 7' where parking or pedestrian movements occur unless otherwise indicated in the manual. The request is that the MUTCD be changed to allow, as an option, for the DO NOT ENTER and WRONG WAY signs at freeway and expressway exit ramps to be mounted at a lower mounting height.

**DISCUSSION:** California has adopted the practice of mounting the DO NOT ENTER and WRONG WAY on a single support along with the ONE WAY sign. The mounting height to the bottom sign is 2 feet. FHWA has indicated that at least 3 states may have adopted the practice and/or policy of lower mounting heights. While combining of signs and a 2' mounting height is not necessarily practiced in other states. Idaho has utilized 4 foot minimum mounting height for DO NOT ENTER and WRONG WAY signs at freeway and expressway exit ramps, on a selective basis for 25 years but it is typically the WRONG WAY sign on the ramp and not the DO NOT ENTER at the crossroad intersection.

**Research:** TTI conducted research regarding wrong way movements at freeway exit ramps in Texas. This report is found under <http://tti.tamu.edu/documents/0-4128-1.pdf>. What they found was that crashes are more prevalent during non-daylight hours, particularly the early morning hours following midnight. One of the recommendations was the use of lower mounting heights for wrong way signage along with mounting the DO NOT ENTER and WRONG WAY sign together on the same post. Three states used lowered DO NOT ENTER and WRONG WAY signs mounted together on the same post. The rationale for this countermeasure was that the vast majority of wrong-way crashes occurred at night and lowered signs are more visible if placed within the area covered by a vehicle's headlights and visible to the driver from the decision point on each likely approach. The survey also revealed that there were no crash tests to support the safety of the lowered mounting height. Consider the use of lowered DO NOT ENTER and WRONG WAY signs mounted together on the same post to address alcohol and nighttime problem locations.

**FHWA Resource Center recommendations:** To meet overriding concerns for enhanced conspicuity of signing for prohibited movements, several countermeasures are recommended in the FHWA Older Driver Highway Design Handbook. One such countermeasure is the mounting height of wrong way signage at freeway and expressway exit ramps. Where all other engineering options have been tried or considered, lowering the sign height to maximize brightness under low-beam headlight illumination is recommended by mounting the signs 36 inches above the pavement (measured from the roadway surface to the bottom of the sign) or the lowest that is practical when the presence of snow, vegetation, or other **obstruction factors** are **is** taken into consideration. This does not meet the present standards of Section 2A.18 of the MUTCD or the Roadside Design Guide Section 4.3.3, so implementing this recommendation should be clearly documented by the authorized agency and requires FHWA permission.

**Breakaway Characteristics:** Windshield penetration needs to be considered when deciding on a mounting height since the standard 5' mounting height provides for the proper breakaway characteristics. However, the location of these signs is such that the if a driver does impact the sign, the consequences are far less severe than what they would encounter if the driver made the wrong turn onto an exit ramp. Also, chances of the sign being struck would be minimal given the speed and location.

**Other Comments:** Other states have found that a 4-foot mounting height has not been a problem related to snow removal while other states contend that it is a snow removal problem. Also, pedestrian head clearance, parked vehicle blockage must also be considered. Idaho has interpreted that Section 2E.50 permits the lower mounting height based on engineering judgment. (Note: Section 2E.50 does not reference mounting height). Idaho interprets the statement that says under OPTION: At locations where engineering judgment determines that a special need exists, other standard warning or prohibitive methods and devices may be used as a deterrent to the wrong-way movement.

**RESPONSE/PROPOSAL:** Studies and findings by both FHWA and Texas Transportation Institute have shown that increasing the sign sizes, higher retro reflective

sheeting materials, DO NOT ENTER and WRONG WAY signing on both sides of ramp provide the best countermeasures. However, the lower mounting height has shown to improve safety in particular for older drivers and nighttime occurrences of crashes. Accordingly the following recommendations are made:

1. Allow for a 3' minimum mounting height for DO NOT ENTER and WRONG WAY signs where snow removal, pedestrian head clearance, or parked vehicles are not compromised. While this may not meet breakaway requirements set forth in AASHTO's specification for Structural Supports of Highway Signs, Luminaries, and Traffic Signals (see page i) the risk of head on collision is more severe than hitting the sign. Consider the Roadside Design Guide (4.3.3) in terms of shielding. Note: Another example of a different mounting height being allowed in the manual is Section 2B.12. This section allows for lower mounting height of in-street pedestrian signs if this same AASHTO standard is followed. Note: Do not use a lower mounting height for any signing at the intersection because of pedestrian clearance, vehicle blockage of signs, breakaway design and snow removal. Only the WRONG WAY and DO NOT ENTER signs located along the exit ramp away from the intersection should be lowered and only when there is a wrong way problem.
2. Retain the present figures in the manual (Figure 2E.39 and Figure 3B.23) which depict the WRONG WAY signage downstream from the DO NOT ENTER signage. This method of installation is the example shown in the manual and should be retained and the preferred method of installation. Section 2B.35 WRONG WAY sign (R5-1a) says that the WRONG WAY sign should be placed at a location along the exit ramp or one way roadway further from the crossroad than the DO NOT ENTER sign. Section 2A.16, Standardization of Location states that signs should be individually installed on separate posts or mountings except where one sign supplements another or regulatory signs that do not conflict with each other.

Above response and recommendation of changes to MUTCD are recommended for approval by RWSTC at the June 2006 NCUTCD meeting.

**RECOMMENDATION: (Proposed Change to MUTCD shown in red and underlined or struck through)**

**Changes shown in yellow were made following sponsor comments.**

### **Section 2A.18 Mounting Height**

Support:

The provisions of this Section apply unless specifically stated otherwise for a particular sign elsewhere in this Manual.

**Standard:**

Signs installed at the side of the road in rural districts shall be at least 1.5 m (5 ft), measured from the bottom of the sign to the near edge of the pavement.

Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 2.1 m (7 ft).

Directional signs on freeways and expressways shall be installed with a minimum height of 2.1 m (7 ft). If a secondary sign is mounted below another sign, the major sign shall be installed at least 2.4 m (8 ft) and the secondary sign at least 1.5 m (5 ft) above the level of the pavement edge. All route signs, warning signs, and regulatory signs on freeways and expressways shall be at least 2.1 m (7 ft) above the level of the pavement edge.

**Option:**

The height to the bottom of a secondary sign mounted below another sign may be 0.3 m (1 ft) less than the height specified above.

Where signs are placed 9 m (30 ft) or more from the edge of the traveled way, the height to the bottom of such signs may be 1.5 m (5 ft) above the level of the pavement edge.

A route sign assembly consisting of a route sign and auxiliary signs (see [Section 2D.27](#)) may be treated as a single sign for the purposes of this Section.

The mounting height may be adjusted when supports are located near the edge of the right-of-way on a steep back slope.

The mounting height of DO NOT ENTER (R5-1) and-or WRONG WAY (R5-1a) signs located along the exit ramp or one way roadway away from the crossroad at freeway and expressway exit ramps may be reduced to a minimum of as low as 0.9 m (3 ft) measured from the bottom of the sign to the near edge of the pavement, where there are no parked cars, pedestrian activity or other obstructions issues such as snow or vegetation.

**Support:**

Without this flexibility regarding steep back slopes, some agencies might decide to relocate the sign closer to the road, which might be less desirable.

**Section 2E.50 Wrong-Way-Traffic Control at Interchange Ramps**

**Option:**

At locations where engineering judgment determines that a special need exists, other standard warning or prohibitive methods and devices may be used as a deterrent to the wrong-way movement. For special mounting height option see Section 2A.18, Mounting Height.

VOTE: Unanimous