National Committee on
Uniform Traffic Control Devices

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**National Committee on Uniform Traffic Control Devices (NCUTCD)**
**Recommended Changes to Proposed Text for 11th Edition of the MUTCD**
**Docket Number: FHWA-2020-0001**

**Federal Register Item numbers:** 19-28, plus one definition from 17
**NPA MUTCD Section Number:** Sections 1D.01-1D.13
**Legend:** Base text shown in proposal is the NPA "clean" proposed text.

- NCUTCD recommendation for text to be added in final rule.
- ~~NCUTCD recommendation for text to be deleted in final rule~~.
- NCUTCD recommendation for text to be moved/relocated in final rule.
- NPA text that was not previously approved by NCUTCD but is now approved.
- Explanatory note: [Note that explains purpose of recommended change.]

The following pages present NCUTCD recommendations for changes to the MUTCD NPA proposed text, tables, and figures for Chapter 1D. Below is a short summary of the NCUTCD position for each section of this chapter. A more detailed summary is provided at the beginning of each section.

- NPA #19, Section 1D.01: Changes recommended based on Council action in Spring 2021.
- NPA #20, Section 1D.02: Changes recommended based on Council action in Spring 2021.
- NPA # (none), Section 1D.03: NCUTCD agrees with NPA content (no changes recommended).
- NPA #21, Section 1D.04: Changes recommended based on Council action in Spring 2021.
- NPA #22, Section 1D.05: NCUTCD agrees with NPA content (no changes recommended).
- NPA #23, Section 1D.06: Changes recommended based on Council action in Spring 2021.
- NPA #24, Section 1D.07: NCUTCD agrees with NPA content (no changes recommended).
- NPA #25, Section 1D.08: NCUTCD agrees with NPA content (no changes recommended).
- NPA #26, Section 1D.09: NCUTCD agrees with NPA content (no changes recommended).
- NPA #27, Section 1D.10: NCUTCD agrees with NPA content (no changes recommended).
- NPA #28, Section 1D.11: NCUTCD agrees with NPA content (no changes recommended).
- NPA # (none), Section 1D.12: NCUTCD agrees with NPA content (no changes recommended).
- NPA #17 (partial), Section 1D.13: NCUTCD recommends relocation of text from Sections 6A.04 and 1C.02 to create a new Section 1D.13 that was not included in the NPA, based on Council action in Spring 2021.

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**Section 1D.01 Comments:** NCUTCD generally agrees with 1D.01 as presented in the NPA, but recommends deletion of the text in the first paragraph cross-referencing to Section 1A.03, because NCUTCD has recommended deletion of all of Section 1A.03 (see docket comments on Chapter 1A.) In the Standard paragraph, NCUTCD notes that the reference to Section 1A.03 is apparently incorrect and we assume that the reference is to Section 1A.03 of the 2009 MUTCD, which does not have a Paragraph 5. Section 1A.03 of the 2009 MUTCD corresponds with Section 1D.06 Design of Traffic Control Devices, of the NPA, which does not appear to have language relevant to this Standard. NCUTCD believes the referenced material is included in proposed Section 2A.07, but FHWA should confirm this. The other recommended change shown below in this Standard paragraph is editorial.

**Section 1D.01 Purpose and Principles of Traffic Control Devices**

Support:

The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all reasonable and prudent road users on streets, highways, bikeways, and site roadways open to public travel throughout the Nation. ~~See Section 1A.03 for additional information on target road users.~~

This Manual contains the basic principles that govern the design and use of traffic control devices for all streets, highways, bikeways, and site roadways open to public travel (see definition in Section 1C.02) regardless of type or class or the public agency, official, or owner having jurisdiction. This Manual's text specifies the restriction on the use of a device if it is intended for limited application or for a specific system. It is important that these principles be given primary consideration in the selection and application of each device.

*Guidance:*

*To be effective, a traffic control device should:*

*A. Fulfill a need;*

*B. Command attention;*

*C. Convey a clear, simple meaning;*

*D. Command respect from road users; and*

*E. Give adequate time for proper response.*

*Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered in order to maximize the ability of a traffic control device to be consistent with the five principles listed in the preceding paragraph. Vehicle speed should be carefully considered as an element that governs the design, operation, placement, and location of various traffic control devices.*

*The proper use of traffic control devices should provide the reasonable and prudent road user with the information necessary to efficiently and lawfully use the streets, highways, pedestrian facilities, and bikeways.*

**Standard:**

**All traffic control devices used on site roadways open to public travel shall have the same shape, color, and meaning as those required by the MUTCD for use on public highways~~, except as provided in Paragraph 5 of Section 1A.03~~. ~~Sign size~~ Exceptions are noted in each ~~Chapter~~ Part as applicable.**

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**Section 1D.02 Comments:** NCUTCD generally agrees with 1D.02 as presented in the NPA, but recommends editorial changes to separate the list of characteristics and activities into two separate lists, one for characteristics and one for activities for clarity.

**Section 1D.02 Traffic Control Device Characteristics and Activities**

Support:

The characteristics ~~and activities~~ associated with traffic control devices are:

A. Meaning—The message the device is intended to convey and the expected road user response to the device.

B. Appearance—The general physical characteristics of a specific device as it appears to the road user. These characteristics include color, shape, legend, acoustical and tactile features, and the relative position and layout of individual elements.

The activities associated with traffic control devices are:

~~C~~. Use (Application) —The process of making a decision to use a specific device at a specific location and the manner and criteria by which such a decision is made given the specific circumstances at that location.

~~D~~. Installation—The process of determining the proper position for a device and providing appropriate visibility for the device. Considerations related to installation include height, lateral distance (offset), longitudinal distance from a reference point, and distance from other devices. Installation also includes addressing the visibility/detection of a device. In addition to height, lateral distance, and longitudinal distance, visibility/detection incorporates size, conspicuity, and contrast with the environmental background. The physical activity of installing a device is not an activity for MUTCD content purposes.

~~E~~. Operation—The process of establishing how the physical characteristics of a device changes over a relatively short period of time to impact the movement of traffic. Most traffic control devices are static and do not have an operational aspect. However, some devices do operate 1 (such as traffic control signals and changeable message signs). Operation does not include gradual deterioration over an extended period of time of physical characteristics due to aging, weathering, or other factors.

~~F~~. Maintenance—The process of monitoring the visibility, crashworthiness, operational, acoustical and tactile features of a device and its performance and taking appropriate actions so that that it will function in the intended manner throughout the life of the device and be replaced at the end of its useful life.

~~G~~. Removal—The process of determining when to remove a specific device from service.

(items C through G should be renumbered to A through E in the second list)

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**Section 1D.03 Comments:** NCUTCD agrees with 1D.03 as presented in the NPA.

**Section 1D.03 Uniformity of Traffic Control Devices**

Support:

Uniformity of the meaning of traffic control devices is vital to their effectiveness. Uniformity means treating similar situations in a similar way.

Uniformity of devices simplifies the task of the road user because it aids in recognition and understanding, thereby reducing perception/reaction time. Uniformity assists road users, law

enforcement officers, and traffic courts by giving everyone the same interpretation. Uniformity assists public highway officials through efficiency in manufacture, installation, maintenance, and administration.

The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a non-standard device; in fact, this might be worse, because such misuse might result in disrespect at those locations where the device is needed and appropriate.

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**Section 1D.04 Comments:** NCUTCD generally agrees with 1D.04 as presented in the NPA, but recommends deleting the first Support paragraph, because the referenced 23 CFR 1.23(b) does not apply to all public right-of-way, especially within local jurisdictions. Also, there are some public highways that are located on easements (such as through National Forests) and not within a right-of-way. Further, the regulation is not related to traffic control devices and should not be included in the MUTCD.

**Section 1D.04 Responsibility and Authority for Traffic Control Devices**

**Standard:**

**The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices in compliance with the provisions of this Manual shall rest with the public agency or the official having jurisdiction, or, in the case of site roadways or private toll roads open to public travel, with the private owner or private official having jurisdiction.**

**All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.**

**Traffic control devices, public announcements or notices, and other signs or messages within the highway right-of-way shall be placed only as authorized by a public authority or the official having jurisdiction, or, in the case of site roadways or private toll roads open to public travel, by the private owner or private official having jurisdiction, for the purpose of regulating, warning, or guiding traffic.**

**When the public agency or the official having jurisdiction over a street or highway or, in the case of private roads open to public travel, the private owner or private official having jurisdiction, has granted proper authority, others such as contractors and public utility companies shall be permitted to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall comply with the provisions of this Manual.**

**Signs and other devices that do not have any traffic control purpose that are placed within the highway right-of-way shall not be located where they will interfere with, or detract from, traffic control devices.**

Support:

~~23 CFR 1.23(b) requires that the highway right-of-way be used exclusively for highway purposes.~~

States are encouraged to adopt, through policy or legislation, the provisions of 23 CFR 750.108 that restrict outdoor advertising from resembling traffic control devices.

**Section 1D.05 Comments**: NCUTCD agrees with 1D.05 as presented in the NPA.

**Section 1D.05 Engineering Study and Engineering Judgment**

Support:

Definitions of professional engineer, engineering study, and engineering judgment are contained in Section 1C.02.

The application of engineering study and engineering judgment is a fundamental tenet of the application of traffic control devices. It is for this reason that, in most cases, the selection of a particular device is not required by a Standard provision, but is determined by engineering study or engineering judgment. Many Standard provisions in this Manual specifically require, by explicit language in the individual provisions or by implication, the application of engineering study or engineering judgment in applying those Standards. Site specific conditions might result in the determination that it is impossible or impracticable to comply with a Standard. In such a case, a deviation from the requirement of a particular Standard at that location might be the only possibility. In such limited, specific cases, the deviation is allowed, provided that the agency or official having jurisdiction fully document, through engineering study, the engineering basis for the deviation.

**Standard:**

**This Manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.**

*Guidance:*

*The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment. Thus, while this Manual provides Standards, Guidance, and Options for design and applications of traffic control devices, this Manual should not be considered a substitute for engineering judgment. Engineering judgment should be exercised in the selection and application of traffic control devices, as well as in the location and design of roads and streets that the devices complement.*

*Early in the processes of location and design of roads and streets, engineers should coordinate such location and design with the design and placement of the traffic control devices to be used with such roads and streets.*

*Jurisdictions, or owners of site roadways or private toll roads open to public travel, with responsibility for traffic control that do not have engineers on their staffs who are trained and/or experienced in traffic control devices should seek engineering assistance from others, such as the State transportation agency, their county, a nearby large city, or a traffic engineering consultant.*

Support:

The provisions of this Manual are intended to be interpreted and applied by engineers or those under the supervision of an engineer. The construction of the provisions of this Manual, therefore, are informed by bases referenced in Paragraphs 8 and 9 of this Section.

The National Council of Examiners for Engineering and Surveying (NCEES) has defined the practice of engineering as “any service or creative work requiring engineering education, training, and experience in the application of engineering principles and the interpretation of engineering data to engineering activities that potentially impact the health, safety, and welfare

of the public." The practice of engineering is, therefore, subject to regulation in the public interest and is regulated by the State licensing boards in order to safeguard the health, safety, and welfare of the public. The NCEES has defined an engineer as "an individual who is qualified to practice engineering by reason of engineering education, training, and experience in the application of engineering principles and the interpretation of engineering data."

The U. S. Office of Personnel Management (OPM) has defined the professional knowledge of engineering as "the comprehensive, in-depth knowledge of mathematical, physical, and engineering sciences applicable to a specialty field of engineering that characterizes a full 4-year engineering program leading to a bachelor's degree, or the equivalent." The OPM has defined professional ability to apply engineering knowledge as "the ability to (a) apply fundamental and diversified professional engineering concepts, theories, and practices to achieve engineering objectives with versatility, judgment, and perception; (b) adapt and apply methods and techniques of related scientific disciplines; and (c) organize, analyze, interpret, and evaluate scientific data in the solution of engineering problems."

Requisite technical training in the application of the principles of the MUTCD is available from the State's Local Technical Assistance Program (LTAP) for needed engineering guidance and assistance.

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**Section 1D.06 Comments**: NCUTCD generally agrees with 1D.06 as presented in the NPA. However, NCUTCD recommends that FHWA consider moving the second Standard paragraph regarding color gradients to Chapter 2A. The first Standard paragraph regarding shapes applies to at least two parts of the Manual and therefore is appropriate for Part 1 and should remain in Section 1D.06. However, in that second Standard paragraph, NCUTCD recommends adding "triangle for Yield" because it is a shape that is exclusive to a particular sign.

**Section 1D.06 Design of Traffic Control Devices**

*Guidance:*

*Devices should be designed so that features such as size, shape, color, composition, lighting or retroreflection, and contrast are combined to draw attention to the devices; that size, shape, color, and simplicity of message combine to produce a clear meaning; that legibility and size combine with placement to permit adequate time for response; and that uniformity, size, legibility, and reasonableness of the message combine to command respect.*

Option:

Except for symbols and colors, minor modifications in the specific design elements of a device may be made based on an engineering study or engineering judgment, in accordance with Paragraph 3 of this Section, provided the essential appearance characteristics are preserved.

*Guidance:*

*Aspects of a traffic control device's standard design should not be modified unless there is a demonstrated need in unusual circumstances, based on an engineering study or engineering judgment.*

Support:

An example of modifying a device's design would be to modify the Combination Horizontal Alignment/Intersection (W1-10) sign to show intersecting side roads on both sides rather than on just one side of the major road within the curve.

**Standard:**

**Shapes that are exclusive to a particular sign (e.g., octagon for Stop, pennant for No Passing Zone, triangle for Yield, or circle for Railroad Advance) shall not be obscured by another sign mounted on the back of the same assembly.**

**Colors (see Section 1D.07) shall be consistent across the face of a sign or a sign panel. Color gradients (smooth or defined gradual transitions either within a color or transition to another color) shall not be allowed.**

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**Section 1D.07 Comments:** NCUTCD agrees with 1D.07 as presented in the NPA.

**Section 1D.07 Color Code**

Support:

The following color code establishes general meanings for 11 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information.

**Standard:**

**The general meaning of the 13 colors shall be as follows:**

**A. Black—regulation**
**B. Blue—road-user services guidance, tourist information, and evacuation route**
**C. Brown—recreational and cultural interest area guidance**
**D. Coral—unassigned (reserved for future designation)**
**E. Fluorescent Pink—incident management**
**F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus and school warning**
**G. Green—indicated movements or actions permitted, direction guidance**
**H. Light Blue—unassigned (reserved for future designation)**
**I. Orange—temporary traffic control**
**J. Purple—restricted to use only by vehicles with registered electronic toll collection (ETC) accounts**
**K. Red—stop or prohibition**
**L. White—regulation**
**M. Yellow—warning**

**These colors shall be used only as prescribed for the specific devices or applications throughout this Manual.**

Support:

The two colors for which general meanings have not yet been assigned are being reserved for future applications that will be determined only by FHWA after consultation with the States, the engineering community, and the general public. The meanings described in this Section are of a general nature. More specific assignments of colors are given in the individual Parts of this Manual relating to each class of devices.

Tolerance limits for each color are contained in 23 CFR Part 655, Appendix to Subpart F and are available at the Federal Highway Administration's MUTCD Web site at http://mutcd.fhwa.dot.gov or by writing to the FHWA, Office of Safety Research and Development (HRD-T-301), 6300 Georgetown Pike, McLean, VA 22101.

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**Section 1D.07 Comments:** NCUTCD agrees with 1D.08 as presented in the NPA.

**Section 1D.08 Public Domain, Copyrights, and Patents**

**Standard:**

**Traffic control device design or application provisions contained in this Manual shall be in the public domain. Traffic control devices contained in this Manual shall not be protected by a patent, trademark, or copyright, except for the Interstate Shield, 511 Travel Information pictograph, and any items owned by FHWA.**

**A traffic control device design or application shall not be eligible for official experimentation (see 8 Section 1B.05) or interim approval (see Section 1B.07) unless it is in the public domain. Express 9 abandonment of any and all forms of proprietary protection, such as patents, trademarks, or copyrights, related to the design and application of the traffic control device shall satisfy the requirement for the traffic control device to be in the public domain.**

**The requirement for the traffic control device to be in the public domain shall not apply to individual components used in the assembly or manufacture of the traffic control device.**

Support:

The limitation on patented, trademarked, or copyrighted traffic control devices applies to the message that the device conveys to the road user. If a patent or other protection covers the device's communication to the road user by virtue of its appearance, audible message, or other aspects of the message conveyed (e.g., the order in which traffic control signal indications change from green to yellow and red), then the device is considered to be protected and not in the public domain. Such a device is precluded from inclusion in this Manual. The purpose of this limitation is to ensure uniformity of the messaging of individually approved traffic control devices. This limitation does not apply to other aspects of a device (e.g., internal controls, circuitry, electronics, mechanics, housing, etc.) so long as the appearance, audible message, or other aspects of the message conveyed, including the manner of conveyance, remain freely reproducible by all without infringing on any proprietary rights or interests. This Manual does not prohibit such other aspects of a traffic control device that meet the legal requirements from being protected through patent, trademark, or copyright; and does not restrict components, parts, manufacturing processes, or similar aspects of traffic control devices from being patented or otherwise protected.

Pictographs, as defined in Section 1C.02, are embedded in traffic control devices but the pictographs themselves are not considered traffic control devices for the purposes of Paragraph 4 of this Section.

Business identification logos, as defined in Section 1C.02, are embedded in traffic control devices but the pictographs themselves are not considered traffic control devices for the purposes of Paragraph 4 of this Section.

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**Section 1D.09 Comments:** NCUTCD agrees with 1D.09 as presented in the NPA.

**Section 1D.09 Advertising**

**Standard:**

**Traffic control devices or their supports shall not bear any advertising message or any other message that is not related to traffic control.**

Support:

Tourist-oriented Directional signs, Specific Service signs, and Acknowledgment signs are not considered advertising; rather, they are classified as motorist service signs.

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**Section 1D.10 Comments:** NCUTCD agrees with 1D.10 as presented in the NPA.

**Section 1D.10 Abbreviations Used on Traffic Control Devices**

**Standard:**

**When the word messages shown in Table 1D-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1D-1 shall be used.**

NCUTCD generally agrees with Table 1D-1 as presented in the NPA, except that THURS should be removed from the General Abbreviations portion of the table, because it duplicates what is listed in the Days of the Week portion of the table.

**Table 1D-1. Acceptable Abbreviations**

**When the word messages shown in Table 1D-2 need to be abbreviated on a portable changeable message sign, the abbreviations shown in Table 1D-2 shall be used. Unless indicated by an asterisk, these abbreviations shall only be used on portable changeable message signs.**

NCUTCD agrees with Table 1D-2 as presented in the NPA

**Table 1D-2. Abbreviations That Shall be Used Only on Portable Changeable Message Signs**

*Guidance:*

*The abbreviations for the words listed in Table 1D-2 that also show a prompt word should 1 not be used on a portable changeable message sign (or a static sign if indicated in Table 1D-2 by an asterisk) unless the prompt word shown in Table 1D-2 either precedes or follows the abbreviation, as applicable.*

**Standard:**

**The abbreviations shown in Table 1D-3 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.**

NCUTCD agrees with Table 1D-3 as presented in the NPA

**Table 1D-3. Unacceptable Abbreviations**

*Guidance:*

*If Table 1D-1 or 1D-2 indicates that more than one abbreviation is permitted for a given word or phrase, the same abbreviation should be used throughout a single jurisdiction. Except as otherwise provided in Table 1D-1 or 1D-2 or unless necessary to avoid confusion, periods, commas, apostrophes, question marks, ampersands, and other punctuation marks or characters that are not letters or numerals should not be used in any abbreviation.*

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**Section 1D.11 Comments:** NCUTCD agrees with 1D.11 as presented in the NPA.

**Section 1D.11 Placement and Operation of Traffic Control Devices**

**Standard:**

**Before any new highway, site roadway open to public travel (see definition in Section 1C.02), detour, or temporary route is opened to public travel, all necessary traffic control devices shall be in place.**

*Guidance:*

*Placement of a traffic control device should be within the road user's view so that adequate visibility is provided. To aid in conveying the proper meaning, the traffic control device should be appropriately positioned with respect to the location, object, or situation to which it applies. The location and legibility of the traffic control device should be such that a road user has adequate time to make the proper response in both day and night conditions.*

*Traffic control devices should be placed and operated in a uniform and consistent manner.*

*Unnecessary traffic control devices should be removed. The fact that a device is in good physical condition should not be a basis for deferring needed removal or change.*

Support:

Section 2A.02 contains information on excessive use of signs and other considerations that can reduce their effectiveness and the effectiveness of other traffic control devices.

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**Section 1D.12 Comments:** NCUTCD agrees with 1D.12 as presented in the NPA.

**Section 1D.12 Maintenance of Traffic Control Devices**

*Guidance:*

*Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions.*

*Physical maintenance of traffic control devices should be performed to retain the legibility and visibility of the device, and to retain the proper functioning of the device.*

Support:

Clean, legible, properly mounted devices in good working condition command the respect of road users.

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**Section 1D.13 Comment:** NCUTCD recommends relocating text from Sections 6A.04 and 1C.02 to create a new Section 1D.13 incorporating all material related to crashworthiness into one section. As noted in the comments on Section 1C.02, the Section 1C.02 definition of "Crashworthy" extends beyond what would be considered a definition and includes material that warrants discussion in a separate Section. The recommended new 1D.13 includes language from 6A.04 that NCUTCD recommends changing from Support to Standard, and also includes a Support statement adapted from the proposed definition of "Crashworthy". NCUTCD recommends that all cross-references regarding crashworthy and crashworthiness in other Parts of the MUTCD should refer to this new Section 1D.13.

**Section 1D.13 Crashworthiness of Traffic Control Devices and Other Roadside Appurtenances**

**Standard:**

**In accordance with various Sections of this Manual, ~~require~~ certain traffic control devices and, their supports, and/or related roadside appurtenances shall ~~to~~be crashworthy (see Definition XX in Section 1C.02). ~~Such MUTCD~~Crashworthiness provisions in this Manual shall apply to all streets, highways, and site roadways open to public travel.**

(relocated from 6A.04, edited for clarity, and changed from Support to Standard)

Support:

Roadside appurtenances include permanent and portable sign supports, other permanent or temporary traffic control devices, and other roadside fixtures that are not traffic control devices, such as longitudinal barriers, bridge railings, barricades, crash cushions, within the clear zone. ~~Acceptable performance of a crashworthy~~ Crashworthiness of a device is determined by ~~a~~ nationally established standards such as the "Manual for Assessing Safety Hardware" (MASH), 2016 Edition (AASHTO). Information on the FHWA's policy on crashworthiness of devices on the National Highway System and other roadways is available at the FHWA Office of Safety Web site at https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/policy_memo_guidance.cfm.

(relocated from the 2nd sentence of 1C.02 definition of Crashworthy and changed to Support)