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 Number: 346-353
NPA MUTCD Section Number: Sections 3C.01-3C.12
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 3C. 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 #346: Section 3C.01. Changes recommended based on Council action in spring 2021.
- NPA #347: Section 3C.02. Changes recommended based on Council action in spring 2021.
- NPA #348: Section 3C.03. Changes recommended based on Council action in spring 2021.
- NPA #349: Section 3C.04. NCUTCD agrees with NPA content (no changes recommended).
- NPA #350: Section 3C.05. Changes recommended based on Council action in spring 2021.
- NPA #351: Section 3C.06, 3C.07, & 3C.08. Changes recommended based on Council action in spring 2021.
- Section 3C.09. NCUTCD agrees with NPA content (no changes recommended).
- NPA #352: Section 3C.10 Changes recommended based on Council action in spring 2021.
- NPA #353: Section 3C.11. Changes recommended based on Council action in spring 2021.
- Section 3C.12. NCUTCD agrees with NPA content (no changes recommended).

CHAPTER 3C. CROSSWALKS

Section 3C.01 Comments: NCUTCD generally agrees with 3C.01, but recommends revising the Standard statement on non-intersection crosswalks to a Support statement noting the markings establish such a crosswalk. Also, NCUTCD would like FHWA to clarify if "non-intersection" refers to a mid-block crossing.

Section 3C.01 General

~~**Standard:**~~

~~**Crosswalk markings shall be provided at non-intersection crosswalk locations.**~~

Support:

At non-intersection locations, crosswalk markings establish the crosswalk. [reword Standard statement as a Support statement]

Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops.

In conjunction with signs and other measures, crosswalk markings help to alert road users of a designated pedestrian crossing point across roadways at locations that are not controlled by traffic control signals or STOP or YIELD signs.

Detectable warning surfaces mark boundaries between pedestrian and vehicular ways where there is no raised curb. Detectable warning surfaces are required by 49 CFR, Part 37 and by the Americans with Disabilities Act (ADA) where curb ramps are constructed at the junction of sidewalks and the roadway, for marked and unmarked crosswalks. Detectable warning surfaces contrast visually with adjacent walking surfaces, either light-on-dark, or dark-on-light. The "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.05) contains specifications for design and placement of detectable warning surfaces.

Provisions for aesthetic treatments for the interior portion of a legally established crosswalk are contained in Section 3H.03.

Standard:

If paving materials are used to function as the white transverse lines to establish a marked crosswalk, white additives shall be part of the mixture to produce a white surface. The white paving materials shall be retroreflective.

Section 3C.02 Comments: NCUTCD agrees with 3C.02 as presented in the NPA with a minor editorial revision.

Section 3C.02 Application of Crosswalk Markings

Support:

Chapter 4J contains information on Pedestrian Hybrid Beacons. Section 4S.03 contains information regarding Warning Beacons to provide active warning of a pedestrian's presence. Section 4U.02 contains information regarding In-Roadway Warning Lights at crosswalks. Chapter 7C contains information on school crosswalks. Chapter 7D contains information regarding school crossing supervision.

Guidance:

Crosswalk markings should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign.

The following criteria should be considered in an engineering study for the installation of a marked crosswalk:

A. Total number of approach lanes,

B. The presence of a median,

C. The distance from adjacent signalized intersections where crosswalks are provided,

D. Pedestrian volumes,

E. Pedestrian ages and abilities, [editorial]

F. Pedestrian delays,

G. Average daily traffic (ADT),

H. Speed limit or the 85th-percentile speed,

I. The geometry of the crossing location,

J. The possible consolidation of multiple crossing points,

K. The availability of street lighting, and

L. Other appropriate factors.

New marked crosswalks alone, without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where any of the following conditions exist:

A. The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or

B. The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater, or

C. The posted speed limit is 40 mph or greater, or

D. A crash study reveals that multiple-threat crashes are the predominant crash type on a multi-lane approach or when adequate visibility cannot be provided by parking prohibitions.

At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk markings should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).

Section 3C.03 Comments: NCUTCD agrees with 3C.03 as presented in the NPA with a minor editorial revision.

Section 3C.03 Design of Crosswalk Markings

Support:

Section 3B.19 contains information regarding placement of stop line markings near crosswalk markings.

Standard:

Crosswalk markings shall be white. When used, transverse lines shall not be less than 6 inches or greater than 24 inches in width.

Support:

The allowable upper limit approaching 24 inches for the width of the transverse lines is normally applied where no stop or yield line is used in advance of the crosswalk or when approach speeds exceed 35 miles per hour.

Crosswalk markings are classified as basic or high visibility. Basic crosswalk markings consist of two transverse lines. High visibility markings consist of longitudinal lines parallel to traffic flow with or without transverse lines. Figure 3C-1 presents examples of crosswalk markings.

Standard:

Except as provided in Paragraph ~~5~~6, the minimum width of a marked crosswalk shall be 6 feet. [editorial]

At a non-intersection crosswalk where the posted speed limit is 40 mph or greater, the minimum width of the crosswalk shall be 8 feet.

Guidance:

Because non-intersection pedestrian crossings are generally unexpected by the road user, warning signs (see Section 2C.55) and high visibility crosswalk markings (such as shown in Figure 3C-1) should be installed for all crosswalks at non-intersection locations.

Option:

Added visibility may be provided by parking prohibitions on the approach to marked crosswalks.

Standard:

Where curb ramps are provided, crosswalk markings shall be located so that the curb ramps are within the extension of the crosswalk markings.

Guidance:

Transverse crosswalk markings should extend across the full width of pavement or to the edge of the intersecting crosswalk to discourage diagonal walking between crosswalks.

Section 3C.04 Comments: NCUTCD agrees with 3C.04 as presented in the NPA.

Section 3C.04 Basic Crosswalks

Support:

The basic crosswalk marking design is limited to two parallel transverse lines (See Figure 3C-1).

Option:

Basic crosswalk markings may be used if an engineering study determines that establishing a crosswalk would be beneficial to:

A. Define where the channelization of pedestrians or other non-motorized users is necessary to facilitate crossing the roadway.

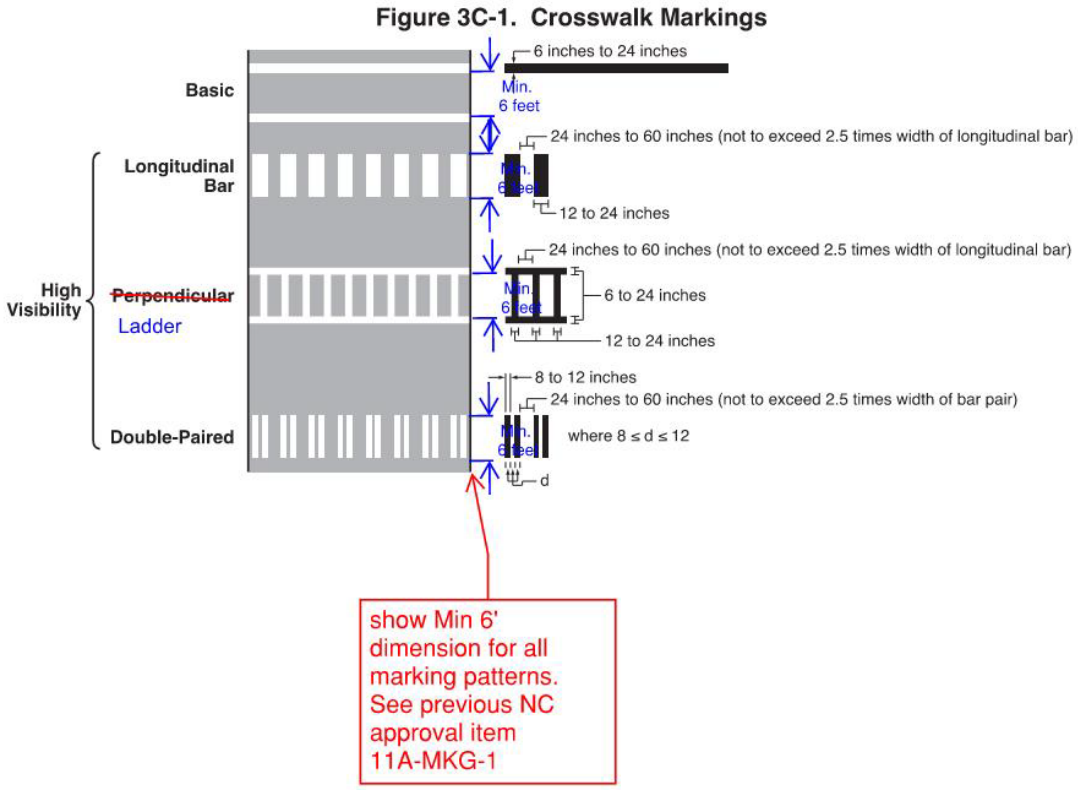
B. Alert motorists to the location of where pedestrians and other non-motorized users may be expected when crossing the roadway.

C. Establish a crosswalk at a controlled intersection.

D. Fulfill a legal need to mark the crosswalk.

Figure 3C-1 Comments: NCUTCD generally agrees with Figure 3C-1, but recommends revising to show a minimum 6 foot crosswalk width in accordance with NCUTCD recommendation 11A-MRK-01. NCUTCD also recommends renaming "perpendicular" crosswalks as "ladder" crosswalks, as this is the more commonly-used term for this crosswalk marking pattern.

Figure 3C-1. Examples of Crosswalk Markings



Section 3C.05 Comments: NCUTCD generally agrees with 3C.05 as presented in the NPA with a minor editorial revision, but recommends renaming "perpendicular" crosswalks as "ladder" crosswalks, as this is the more commonly-used term for this crosswalk marking pattern.

Section 3C.05 High-Visibility Crosswalks

Option:

High-visibility crosswalk markings may be used where additional conspicuity is desired for a crosswalk over basic transverse crosswalk markings.

Support:

High-visibility crosswalk markings ~~are limited to~~ include the Longitudinal Bar, ~~Perpendicular~~ Ladder, and Double Paired designs (See Figure 3C-1). [revise per 11A-MRK-01]

High-visibility crosswalk markings can provide benefits to crosswalk operations including:

A. Providing greater detection distances for the approaching motorist.

B. Establishing a crosswalk where substantial numbers of pedestrians cross without any other traffic control device.

C. Establishing a crosswalk at an uncontrolled intersection.

D. Emphasizing the location where a high number of conflicts between turning motorists and users of the crosswalk are expected.

E. Improving visibility of the crosswalk location for otherwise difficult to detect pedestrians or other non-motorized users of the crosswalk.

F. Establishing a school crossing.

Standard:

The minimum number of individual longitudinal elements to establish a high-visibility crosswalk shall be three. For the double-paired crosswalk design (see Section 3C.08), a coupling set of two longitudinal bars shall be considered to be one individual longitudinal element.

The dimensions of the individual longitudinal element and the lateral spacing between subsequent individual longitudinal elements for a high-visibility crosswalk shall be uniform when establishing the crosswalk.

The dimensions of the individual longitudinal element and the lateral spacing between subsequent individual longitudinal elements for a high-visibility crosswalk shall be uniform on both sides of a median refuge island if one is present.

Guidance:

The dimensions of the individual longitudinal element and the lateral spacing between subsequent individual longitudinal elements for a high-visibility crosswalk should be uniform when establishing separate crosswalks on multiple approaches to the same intersection.

The individual longitudinal elements of a high-visibility crosswalk should be angled such that they are parallel to approaching traffic.

Section 3C.06 Comments: NCUTCD agrees with 3C.06 as presented in the NPA, with a minor editorial correction to reference Figure 3C-1.

Section 3C.06 Longitudinal Bar Crosswalks

Support:

The longitudinal bar crosswalk (See Figure 3C-1) marking design provides for improved detection and recognition over the basic crosswalk for people with low vision and cognitive impairments. [editorial]

Standard:

The width of an individual longitudinal bar shall not be less than 12 inches or greater than 24 inches.

The lateral spacing between subsequent longitudinal bars shall not be less than 12 inches or greater than 60 inches. The lateral spacing of the longitudinal bars shall not exceed 2.5 times the width of a longitudinal bar.

Section 3C.07 Comments: NCUTCD generally agrees with 3C.07 as presented in the NPA, but recommends renaming "perpendicular" crosswalks as "ladder" crosswalks, as this is the more commonly-used term for this crosswalk marking pattern.

Section 3C.07 ~~Perpendicular~~ Ladder Crosswalks

Support:

~~Perpendicular~~ Ladder crosswalks (See Figure 3C-1) implement a pattern where interior longitudinal bars are perpendicular to the transverse lines used to define the limits of the crosswalk.

Since the longitudinal component of the ~~perpendicular~~ ladder crosswalk marking design is similar to the benefits provided by the longitudinal bar crosswalk design, the ~~perpendicular~~ ladder crosswalk design is normally used to discourage or prohibit diagonal walking between crosswalks.

Standard:

The transverse lines used to establish the limits of the ~~perpendicular~~ ladder crosswalk shall not be less than 6 inches or greater than 24 inches in width.

The width of an individual interior longitudinal bar shall not be less than 12 inches or greater than 24 inches.

The lateral spacing between subsequent interior longitudinal bars shall not be less than 12 inches or greater than 60 inches. The lateral spacing of the interior longitudinal bars shall not exceed 2.5 times the width of an interior longitudinal bar.

Option:

Where it may be necessary to alleviate a parallax phenomenon due to approaching roadway geometry that curves or to accommodate low approach angles of the approaching motorist, the interior longitudinal bars may be rotated up to 45 degrees to the transverse lines to remain parallel to approaching traffic.

Section 3C.08 Comments: NCUTCD generally agrees with 3C.08 as presented in the NPA, but recommends adding a figure reference and revising the Standard statement to an Option statement to allow transverse lines with longitudinal bar pair crosswalks.

Section 3C.08 Longitudinal Bar Pair Crosswalks

Support:

Longitudinal bar pair crosswalks (See Figure 3C-1) can provide the same benefits as other high visibility crosswalk designs with the opportunity for less maintenance. [editorial]

Longitudinal bar pair crosswalks can be useful in locations that are susceptible to slip and fall incidents exacerbated by extreme or inclement weather, or in locations where high motorcycle or bicycle use is expected in order to maximize wheel traction with the road surface.

Standard:

The width of an individual longitudinal bar that establishes one-half of the bar pair shall not be less than 8 inches or greater than 12 inches. The lateral space between successive individual longitudinal bars within the same bar pair shall be equal to the width of one longitudinal bar.

The lateral spacing between each of the longitudinal bars in a bar pair shall not be less than 24 inches or greater than 60 inches, or 2.5 times the width of the total width of a bar pair.

~~**Longitudinal bar pair crosswalks shall not be installed with accompanying transverse lines.**~~

Option:

Longitudinal bar pair crosswalks may be installed with accompanying transverse lines. [revise Standard to an Option to allow transverse lines]

Section 3C.09 Comments: NCUTCD agrees with 3C.09 as presented in the NPA.

Section3C.09 Crosswalk Markings at Circular Intersections

Standard:

Crosswalk markings shall not be provided to or from the central island of roundabouts.

Guidance:

If pedestrian facilities are provided, crosswalks should be marked across roundabout entrances and exits to indicate where pedestrians are intended to cross.

Crosswalks should be a minimum of 20 feet from the edge of the circulatory roadway.

Support:

Chapter 3D provides figures that illustrate examples of crosswalk markings in circular intersections.

Section 3C.10 Comments: NCUTCD generally agrees with 3C.10 as presented in the NPA, but recommends revising the Guidance statement discouraging high-visibility markings for diagonal crosswalks to an Option statement allowing this treatment.

Section 3C.10 Crosswalks for Exclusive Pedestrian Phases that Permit Diagonal Crossings

Option:

When an exclusive pedestrian phase that permits diagonal crossing of an intersection is provided at a traffic control signal, a marking as shown in Figure 3C-2 may be used for the crosswalk.

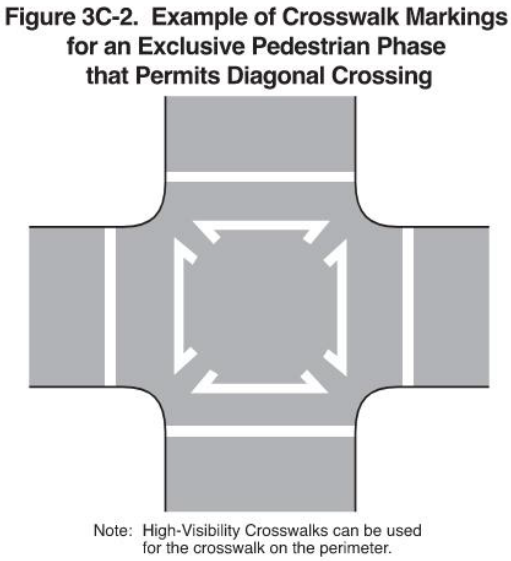
~~*Guidance:*~~

~~*The segments of the crosswalk marking that facilitate the diagonal crossing should not use high visibility crosswalk markings.*~~

The segments of the crosswalk marking that facilitate the diagonal crossing may use high visibility crosswalk markings. [reword Guidance as Option statement]

Figure 3C-2 Comments: NCUTCD agrees with Figure 3C-2 as presented in the NPA.

Figure 3C-2. Example of Crosswalk Markings for an Exclusive Pedestrian Phase that Permits a Diagonal Crossing



Section 3C.11 Comments: NCUTCD generally agrees with 3C.11 as presented in the NPA, but recommends changing the term "Diamond Interchanges with a Transposed Alignment Crossroad" to the commonly-used "Diverging Diamond Interchanges".

Section 3C.11 Crosswalks at Diverging Diamond Interchanges ~~with a Transposed Alignment Crossroad~~

Support:

Pedestrian crossing movements at a diverging diamond interchange ~~with a transposed alignment crossroad~~ are provided at the crossover points where motor vehicle traffic becomes inverted.

Pedestrian crossing movements provided downstream on the ramp terminals can violate driver expectancy. Devices such as the pedestrian hybrid beacon and the rectangular-rapid flashing beacon do not alleviate these deficiencies in this setting.

Pedestrian crossing movements provided downstream on the ramp terminals can disorient pedestrians with limited vision or cognitive impairments by subjecting the pedestrian to cross the same ramp twice.

Guidance:

Crossings for pedestrians at diverging diamond interchanges ~~with a transposed alignment crossroad~~ should be consolidated and provided where pedestrian desire lines have been demonstrated or established.

The most direct pedestrian paths should be provided to minimize pedestrians whom may cross outside of crosswalks where drivers are less likely to expect them.

Option:

Where the pedestrian movement is facilitated using the median on a shared-use path, Destination Guide signs for shared-use paths may be used (see Section 9D.12).

Support:

Figure 3B-29 illustrates the location of pedestrian crossings at diverging diamond interchanges ~~with a transposed alignment crossroad~~. [Figure 3B-29 was omitted from the docket]

Section 3C.12 Comments: NCUTCD agrees with 3C.12 as presented in the NPA.

Section 3C.12 Pedestrian Islands and Medians

Support:

Raised islands or medians of sufficient width that are placed in the center area of a street or highway can serve as a place of refuge for pedestrians who are attempting to cross at a midblock or intersection location. Center islands or medians allow pedestrians to find an adequate gap in one direction of traffic at a time, as the pedestrians are able to stop, if necessary, in the center island or median area and wait for an adequate gap in the other direction of traffic before crossing the second half of the street or highway. The minimum widths for accessible refuge islands and for design and placement of detectable warning surfaces are provided in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.05).