



National Committee on Uniform Traffic Control Devices

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Item No.: 25A-BIK-05

NCUTCD PROPOSAL FOR CHANGES TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

COMMITTEE / TASK FORCE: Bicycle Technical Committee
ITEM NUMBER: 25A-BIK-05
TOPIC: Two-Stage Bicycle Turn Box – Double Turn Arrow Option
ORIGIN OF REQUEST: Bicycle Technical Committee
AFFECTED SECTIONS OF MUTCD: 9E.11

DEVELOPMENT HISTORY:

Approved by Bicycle TC: 01/10/2025
Approved by NCUTCD Council:

This is a proposed change to the MUTCD that has been developed by a technical committee, joint committee, or joint task force of the NCUTCD. The NCUTCD is distributing this to its sponsoring organizations for review and comment. Sponsor comments will be considered in revising the proposal prior to NCUTCD Council consideration. This proposal does not represent a revision of the MUTCD and does not constitute official MUTCD standards, guidance, options, or support. If approved by the NCUTCD Council, the recommended changes will be submitted to FHWA for consideration for inclusion in a future MUTCD revision. The MUTCD can be revised only through the federal rulemaking process.

SUMMARY:

Two-stage bicycle turn boxes permit cyclists to turn left or right without merging across traffic. When used in conjunction with two-way bikeways, these turn boxes can be used for both cyclists turning left and right. Interim Approval 20 did not specify how to mark turn boxes being used for both turns, but did not preclude such use. The 11th Edition specifies that when a turn box is used for both turns from a two-way bikeway, a straight through arrow in the appropriate direction shall be used. This practice does not match the practice used by many jurisdictions, and may not be properly understood by cyclists, as the straight arrow does not mimic their turning movement. This proposal clarifies the use of turn arrows for boxes at two-way bikeways.

DISCUSSION:

As allowed by the traffic laws in most states, bicyclists are allowed to turn left or right in two stages without merging across traffic. Two-stage bicycle turn boxes formalize that movement. Two-stage bicycle turn boxes were first approved for experimentation in 2016 and generally permitted through Interim Approval 20 (IA-20) issued in 2017. In cases where a two-stage turn box is located next to a one-way bicycle lane, the box consists of an area bounded by a solid white line with a bicycle symbol and a turn arrow indicating the direction of the turn.

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The IA allowed the use of turn boxes with two-way bicycle facilities, but did not specify how the style or number of arrow markings. Many jurisdictions chose to use two arrows with two-way bikeways indicating that both left and right-turn movements could be made from the box.



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Example of a two-stage bicycle turn box with double turn arrows from Silver Spring, MD.

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In the 11th Edition, Section 9E.11 now requires that when used for both turns along a two-way bikeway a single straight through arrow shall be used in the box pointing in the appropriate direction of the second leg of the bicycle turn.

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The use of a through arrow instead of a turn arrow is inconsistent with all other instances of the use of arrows to mark turns in the Manual. The arrows used for left and right turn lanes and two-way left turn lanes are all the same type of arrow (see Section 3B.23), and this is also the case for bicycle two-stage turn boxes with a turn from one direction only.

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Some bicyclists may be confused by this marking and not realize that the box is intended for turning, since the straight arrow marking is generally used to indicate a through movement. Cyclists on the bikeway that is being turned from may believe the box is intended for through cyclists on the perpendicular street. Markings used for turning movements are usually a curved arrow, and this marking is well understood by all road users.

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This proposal would revise the Standard to require use of two-turn arrows for two-way turn boxes at two-way bikeways with an Option to use a single straight through arrow in constrained locations or where the intersection/bicycle turn geometry is appropriate.

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63 **RECOMMENDED MUTCD CHANGES:**
64 The following present the proposed changes to the current MUTCD within the context of the
65 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and
66 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously
67 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double
68 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,
69 background comments may be provided with the MUTCD text. These comments are indicated
70 by bracketed white text in shaded green. Deletions made by a technical committee or task
71 force after initial distribution to sponsoring organizations are shown in ~~highlighted red~~
72 ~~strikethrough and Helvetica text~~. Additions made by a technical committee or task force after
73 initial distribution to sponsoring organizations are shown in underline blue and Helvetica text.

74 **PART 9. TRAFFIC CONTROL FOR BICYCLE FACILITIES**

75 **CHAPTER 9E. MARKINGS**

76 **Section 9E.11 Two-Stage Bicycle Turn Boxes**

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79 Support:

80 01 Two-stage bicycle turn boxes allow bicyclists the opportunity to make turns at an intersection or
81 crossing point instead of requiring them to merge into traffic upstream or to dismount and use a crosswalk
82 at the intersection or crossing point.

83 02 Section 9B.18 contains information on regulatory signing that shall be used in conjunction with a
84 two-stage bicycle turn box pavement marking where bicyclists are required to use the turn box.

85 03 Section 9D.13 contains information on guide signing that can be used in conjunction with a two-
86 stage bicycle turn box pavement marking where bicyclists are not required to use the turn box.

87 **Standard:**

88 04 **If used, two-stage bicycle turn boxes shall be located:**

89 **A. In an area between the closest through bicycle or motor vehicle movement and the parallel**
90 **crosswalk (see Drawing A in Figure 9E-10),**

91 **B. In an area between the through bicycle movement and the parallel pedestrian crossing**
92 **movement if no crosswalk is established (see Drawing B in Figure 9E-10),**

93 **C. On the innermost side of the bicycle facility provided that the two-stage turn box is located**
94 **in a portion of the intersection where parallel or motor vehicle traffic does not travel, such**
95 **as projections of islands or parking lanes (see Drawing C in Figure 9E-10), or**

96 **D. In an area between the through bicycle movement and a pedestrian facility for T-**
97 **intersections (see Drawing D in Figure 9E-10).**

98 05 **A two-stage bicycle turn box shall consist of at least one bicycle symbol pavement marking and**
99 **at least one pavement marking arrow.**

100 06 **A turn arrow in the appropriate direction shall be used if a two-stage turn box is used with a**
101 **one-way bicycle lane, and two turn a-through arrows in the appropriate direction shall be used if a**
102 **two-stage turn box is used with a two-way bikeway (see Figure 9E-11).**

103 Option:

104 06a Where space within the two-stage turn box is too constrained by the approach width and/or
105 intersection geometry to allow use of two turn arrows, a single straight through arrow may be used (See
106 Figure 9E-11a).

107 Standard:

108 07 **A two-stage bicycle turn box shall be bounded on all sides by a solid white line.**

109 08 **For two-stage bicycle turn boxes that facilitate turns from a one-way bikeway, the bicycle**
110 **symbol shall precede the pavement marking turn arrow in the direction of bicycle travel (see Figure**
111 **9E-10).**

112 09 **Passive detection of bicycles in the two-stage bicycle turn box shall be provided if the signal**
113 **phase that permits bicycles to enter the intersection during the second stage of their turn is**
114 **actuated.**

115 *Guidance:*

116 10 *Engineering judgment should be used to develop the size of the two-stage bicycle turn box. Factors*
117 *considered should include intersection geometry and keeping queued bicycles away from moving traffic,*
118 *as well as peak hour bicycle volumes to avoid overflow of the two-stage turn box that subjects any*
119 *bicyclist to conflicting movements.*

120 *Option:*

121 11 *The two-stage turn box may use green-colored pavement.*

122 **Standard:**

123 12 **If used, green-colored pavement shall encompass all of the two-stage turn box.**

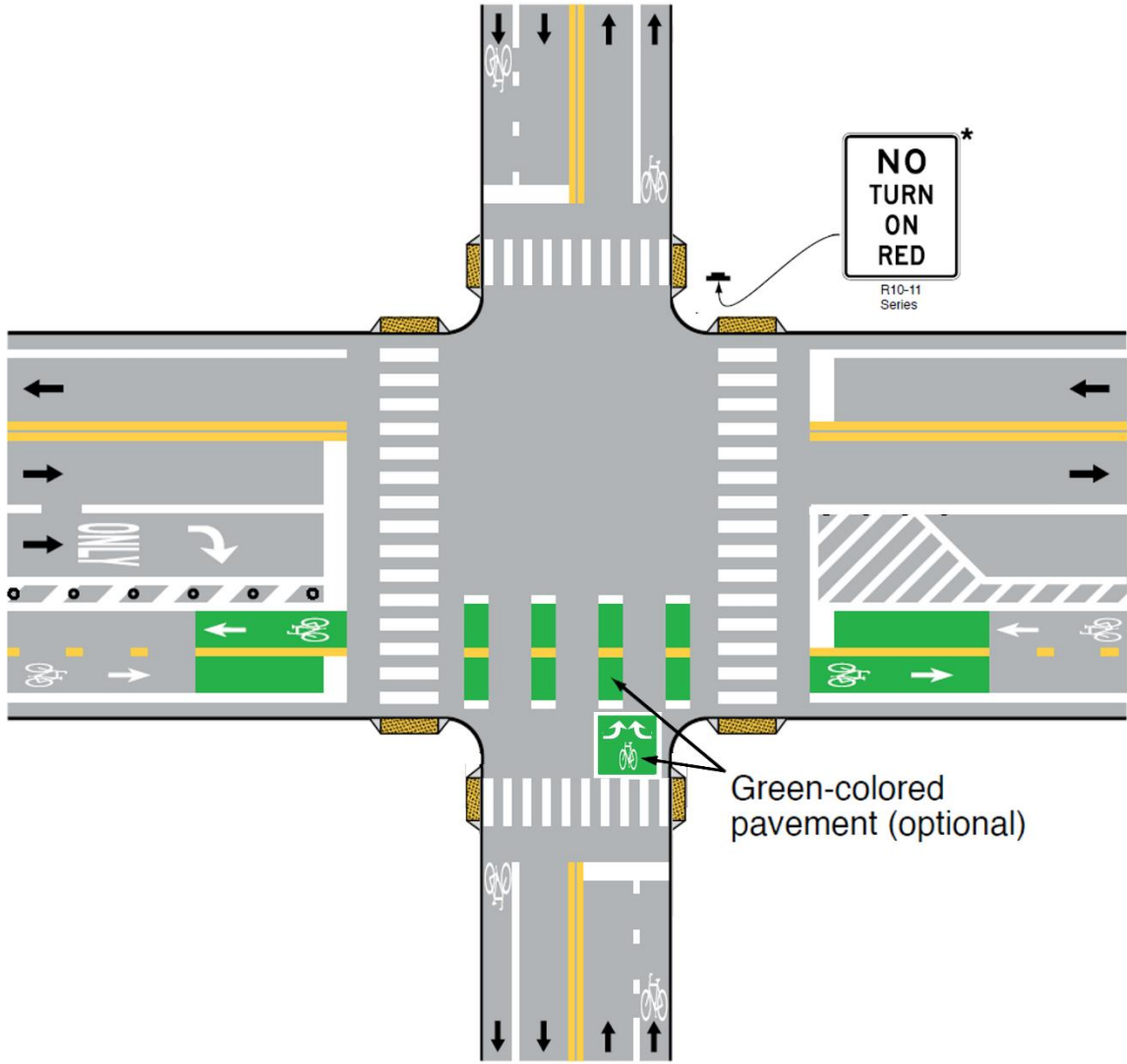
124 13 **Where the path of vehicles lawfully turning on red would pass through a two-stage bicycle turn**
125 **box, a full-time no-turn-on-red prohibition (see Section 2B.60) shall be provided for the crossroad**
126 **approach.**

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Figure 9E-11. Example of a Two-Stage Turn Box at an Intersection with a Two-Way Bikeway

[Replace existing Figure 9E-11 with new Figure 9E-11 below]

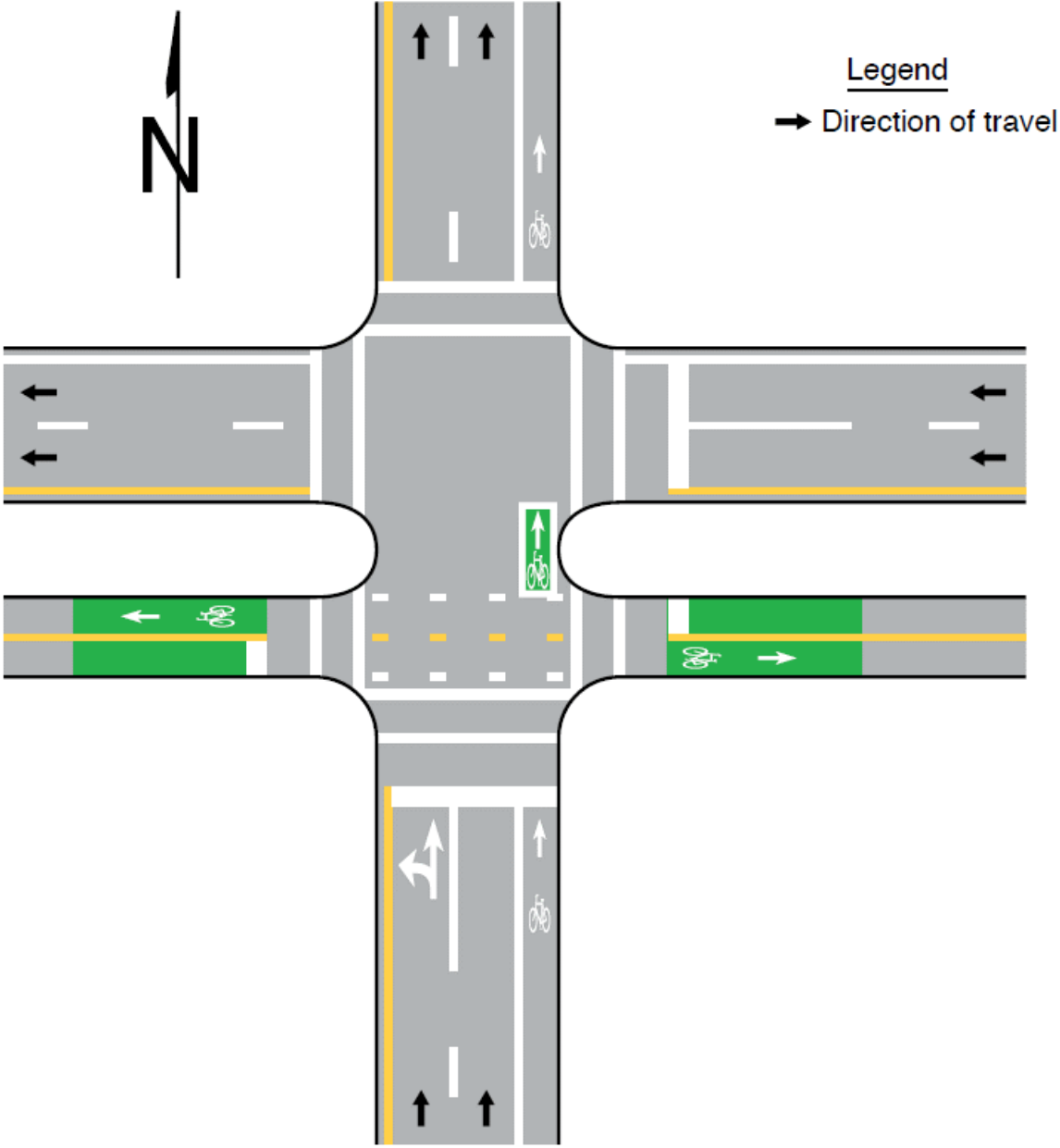


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Figure 9E-11a. Example of a Two-Stage Turn Box Location at an a Constrained Intersection with a Two-Way Bikeway

[Rename existing Figure 9E-11 to 9E-11a - no changes to figure]



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