



National Committee on Uniform Traffic Control Devices

13236 North 7th Street, Suite 4-259, Phoenix, Arizona 85022
Phone/Text: 231-4-NCUTCD (231-462-8823)
E-mail: secretary@ncutcd.org Website: <https://ncutcd.org>

Item No.: 25A-BIK-05

NCUTCD RECOMMENDATION 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: 01/07/2026
Approved by NCUTCD Council: 01/09/2026

This is a recommended change to the MUTCD that has been approved by the NCUTCD Council. This proposal does not represent a revision of the MUTCD and does not constitute official MUTCD standards, guidance, or options. It 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.

The interim approval 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.



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

39
40
41

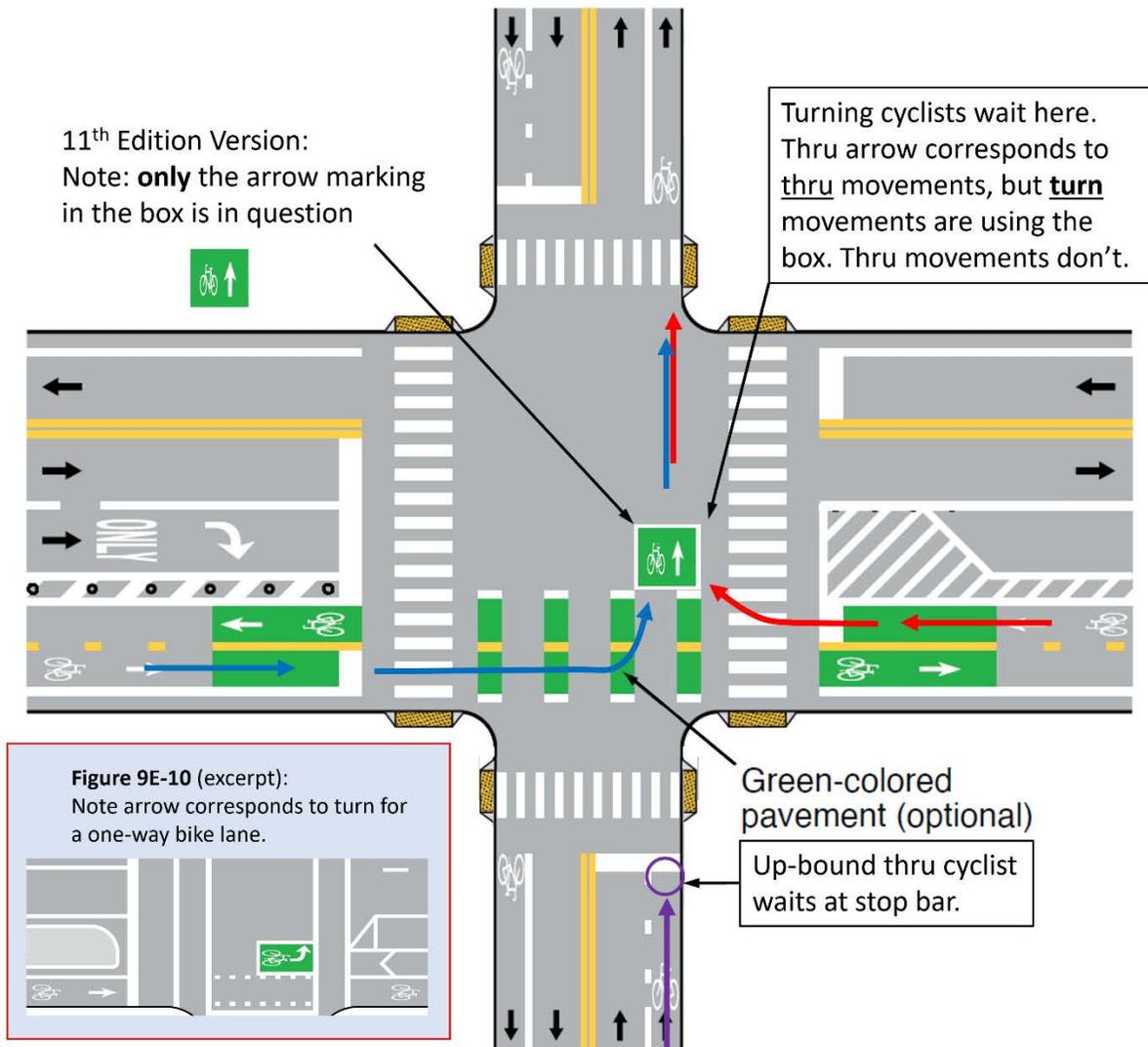
42 In the 11th Edition, Section 9E.11 now requires that when used for both turns along a two-way
43 bikeway a single straight through arrow shall be used in the box pointing in the appropriate
44 direction of the second leg of the bicycle turn.

45

46 In the graphic below, note the blue and red arrows, which show how cyclists are supposed to
47 travel when turning using the two-stage bicycle turn box. The blue arrow represents a bicyclist
48 moving toward the right side of the graphic, turning left toward the top of the graphic. The red
49 arrow represents a bicyclist moving toward the left side of the graphic, turning right toward the
50 top of the graphic.

51

52 Bicyclists traveling toward the top of the graphic from the bottom approach (shown in purple) do
53 not use the two-stage bicycle turn box. Instead, they wait at the stop bar, or in a bike box if one
54 is provided. However, the use of the through arrow as required in the 11th Edition may mislead
55 them into believing the turn box is an advance waiting area. Additionally, cyclists making the
56 turning (blue and red) movements may not realize the box is for them, since a through arrow
57 pavement marking is never used to represent a turning space.

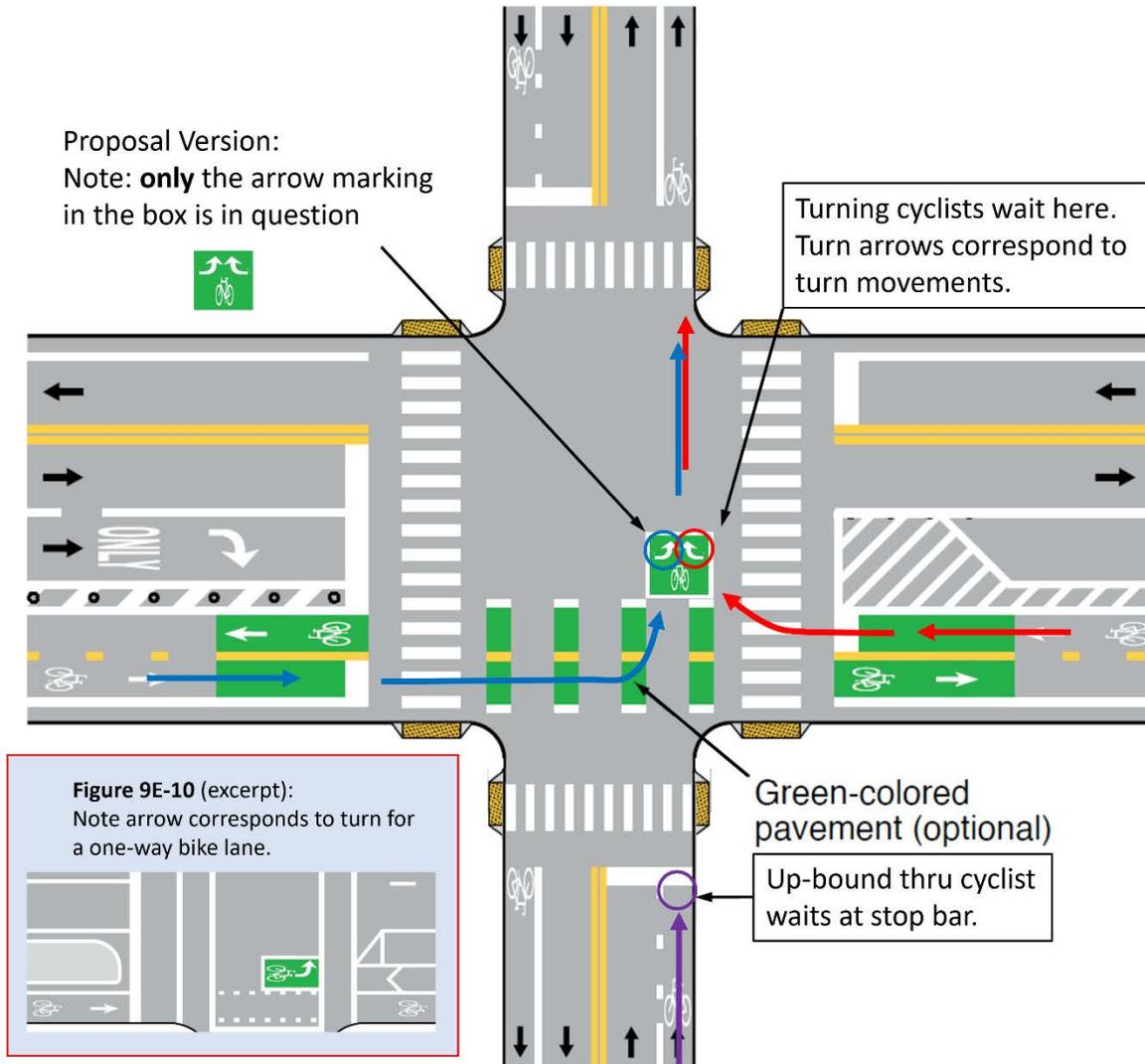


58
59 The use of a through arrow instead of a turn arrow is inconsistent with all other instances of the
60 use of arrows to mark turns in the Manual. The arrows used for left and right turn lanes and two-
61 way left turn lanes are all the same type of arrow (see Section 3B.23), and this is also the case
62 for bicycle two-stage turn boxes with a turn from one direction only.

63
64 Some bicyclists may be confused by this marking and not realize that the box is intended for
65 turning, since the straight arrow marking is generally used to indicate a through movement.
66 Cyclists on the bikeway that is being turned from may believe the box is intended for through
67 cyclists on the perpendicular street. Markings used for turning movements are usually a curved
68 arrow, and this marking is well understood by all road users.

69
70 This proposal would revise the Standard to require use of two-turn arrows for two-way turn
71 boxes at two-way bikeways with an Option to use a single straight through arrow in constrained
72 locations or where the intersection/bicycle turn geometry is appropriate.

73



74
75 Note in the above graphic that the turn arrows for the blue and red turning movements
76 correspond to the turns being made and are consistent with the use of turn arrows for two-stage
77 turn boxes used for one-way bike lanes.

78
79 Please also note that this proposal does not introduce two-stage bicycle turn boxes. They are in
80 the 11th Edition. This proposal only modifies which arrows to use when the turn boxes are used
81 in conjunction with a two-way bicycle facility.

82 **RECOMMENDED MUTCD CHANGES:**

83 The following present the proposed changes to the current MUTCD within the context of the
84 current MUTCD language. Proposed additions to the MUTCD are shown in blue underline and
85 proposed deletions from the MUTCD are shown in ~~red strikethrough~~. Changes previously
86 approved by NCUTCD Council (but not yet adopted by FHWA) are shown in green double
87 underline for additions and ~~green double strikethrough~~ for deletions. In some cases,
88 background comments may be provided with the MUTCD text. These comments are indicated
89 by bracketed white text in shaded green.

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

92 **CHAPTER 9E. MARKINGS**

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

94 Support:

95 01 Two-stage bicycle turn boxes allow bicyclists the opportunity to make turns at an intersection or
96 crossing point instead of requiring them to merge into traffic upstream or to dismount and use a crosswalk
97 at the intersection or crossing point.

98 02 Section 9B.18 contains information on regulatory signing that shall be used in conjunction with a
99 two-stage bicycle turn box pavement marking where bicyclists are required to use the turn box.

100 03 Section 9D.13 contains information on guide signing that can be used in conjunction with a two-
101 stage bicycle turn box pavement marking where bicyclists are not required to use the turn box.

102 **Standard:**

103 04 **If used, two-stage bicycle turn boxes shall be located:**

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

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

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

111 Deletion of “or” is a known error.

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

114 05 **A two-stage bicycle turn box shall consist of at least one bicycle symbol pavement marking and**
115 **at least one pavement marking arrow.**

116 06 Except as provided in paragraph 06a, a ~~A~~ turn arrow in the appropriate direction reflecting
117 the direction from which the bicyclist is approaching and the direction the bicyclist intends to turn
118 shall be used if a two-stage bicycle turn box is used with a one-way bicycle lane, and two turn a
119 through arrows in the appropriate ~~direction~~ directions shall be used if a two-stage bicycle turn box
120 is used with a two-way ~~bikeway~~ bicycle facility (see Figure 9E-11).

121 Option:

122 06a Where space within the two-stage bicycle turn box is too constrained by the approach width and/or
123 intersection geometry to allow use of two turn arrows, a single straight through arrow may be used
124 pointing in the direction the bicyclist will be traveling after completing their turn (see ~~See~~ Figure 9E-11a).

125 **Standard:**

126 07 **A two-stage bicycle turn box shall be bounded on all sides by a solid white line.**

127 08 **For two-stage bicycle turn boxes that facilitate turns from a one-way bikeway, the bicycle**
128 **symbol shall precede the pavement marking turn arrow in the direction of bicycle travel (see Figure**
129 **9E-10).**

132 09 **Passive detection of bicycles in the two-stage bicycle turn box shall be provided if the signal**
133 **phase that permits bicycles to enter the intersection during the second stage of their turn is**
134 **actuated.**

135 *Guidance:*

136 10 *The two-stage bicycle turn box should be a minimum of 6.5 feet in length, measured along the*
137 *direction a bicyclist is facing after completing the turn. The box should be a minimum of 5 feet in width.*
138 ~~*Engineering judgment should be used to develop the size of the two-stage bicycle turn box. Factors*~~
139 ~~*considered in determining the size should include intersection geometry and keeping queued bicycles*~~
140 ~~*away from moving traffic, as well as peak hour bicycle volumes to avoid overflow of the two-stage turn*~~
141 ~~*box that subjects any bicyclist to conflicting movements.*~~

142 *The typical width of a conventional bicycle lane is 5 ft. The AASHTO Guide for the Development of*
143 *Bicycle Facilities 5th Edition lists 6.5 ft as the minimum length, but does not list a minimum width.]*

144 *Option:*

145 11 The two-stage turn box may use green-colored pavement.

146 **Standard:**

147 12 **If used, green-colored pavement shall encompass all of the two-stage turn box.**

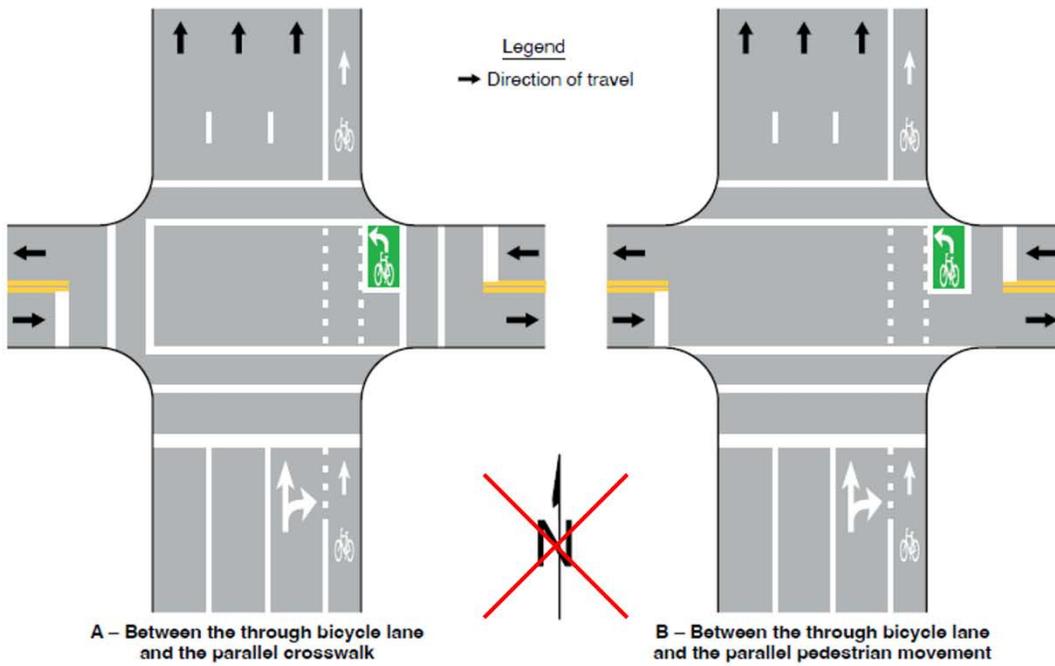
148 13 **Where the path of vehicles lawfully turning on red would pass through a two-stage bicycle turn**
149 **box, a full-time no-turn-on-red prohibition (see Section 2B.60) shall be provided for the crossroad**
150 **approach.**

151

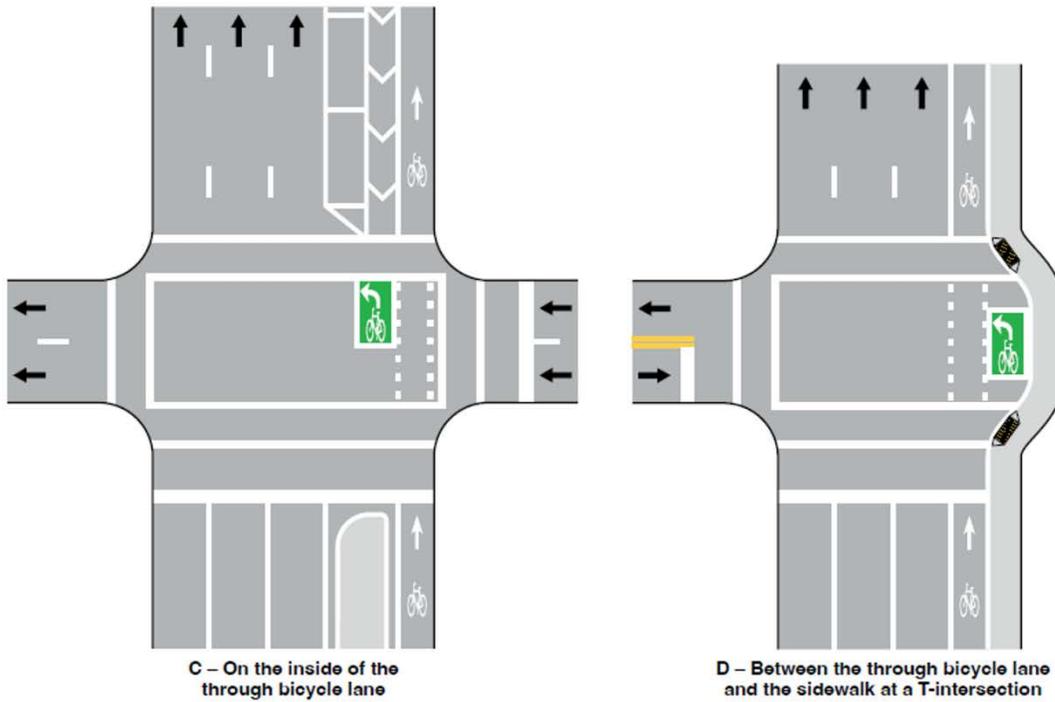
152

153
154

Figure 9E-10. Examples of Two-Stage **Bicycle** Turn Box Locations at Intersections

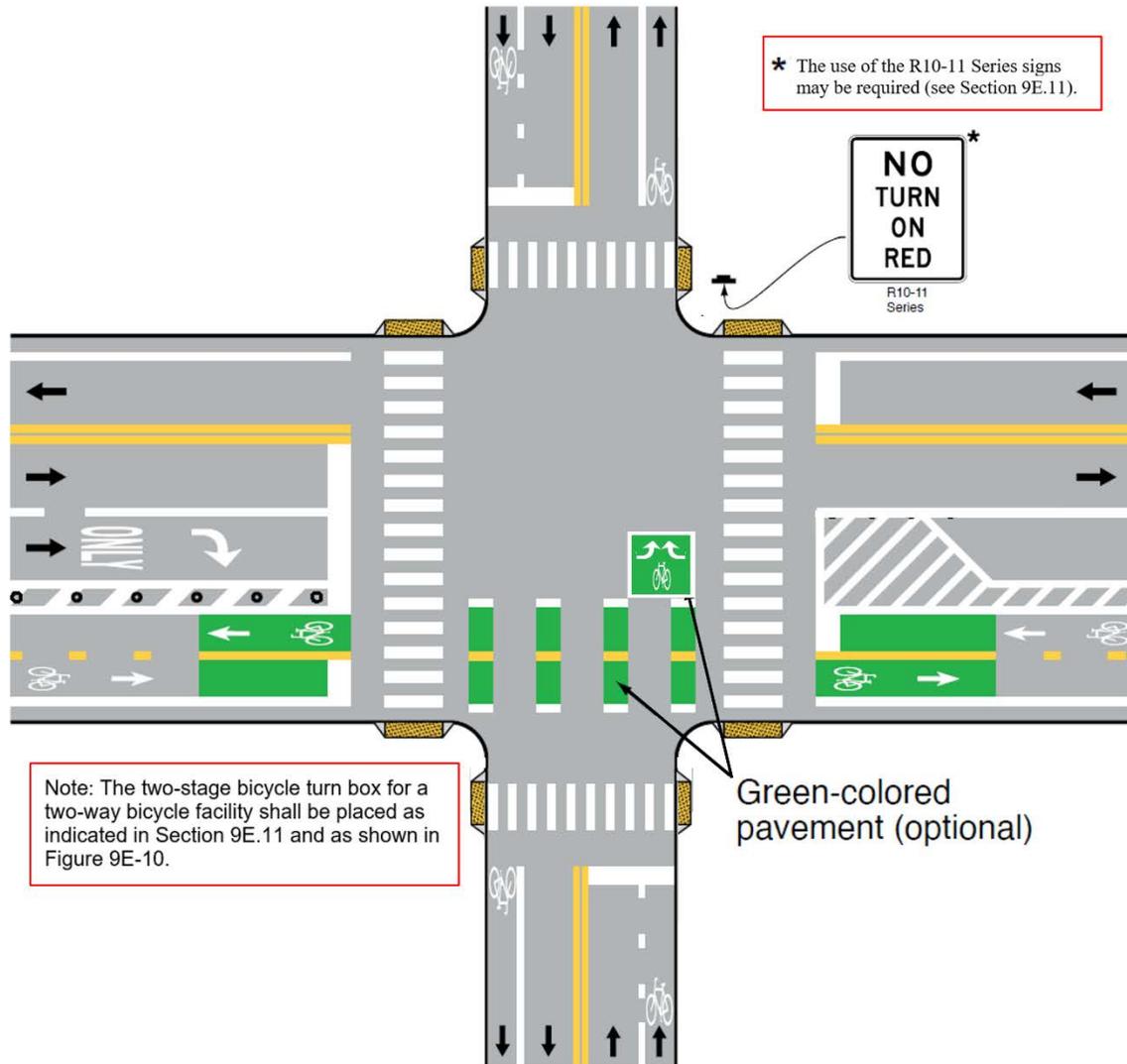


155
156



157
158
159
160

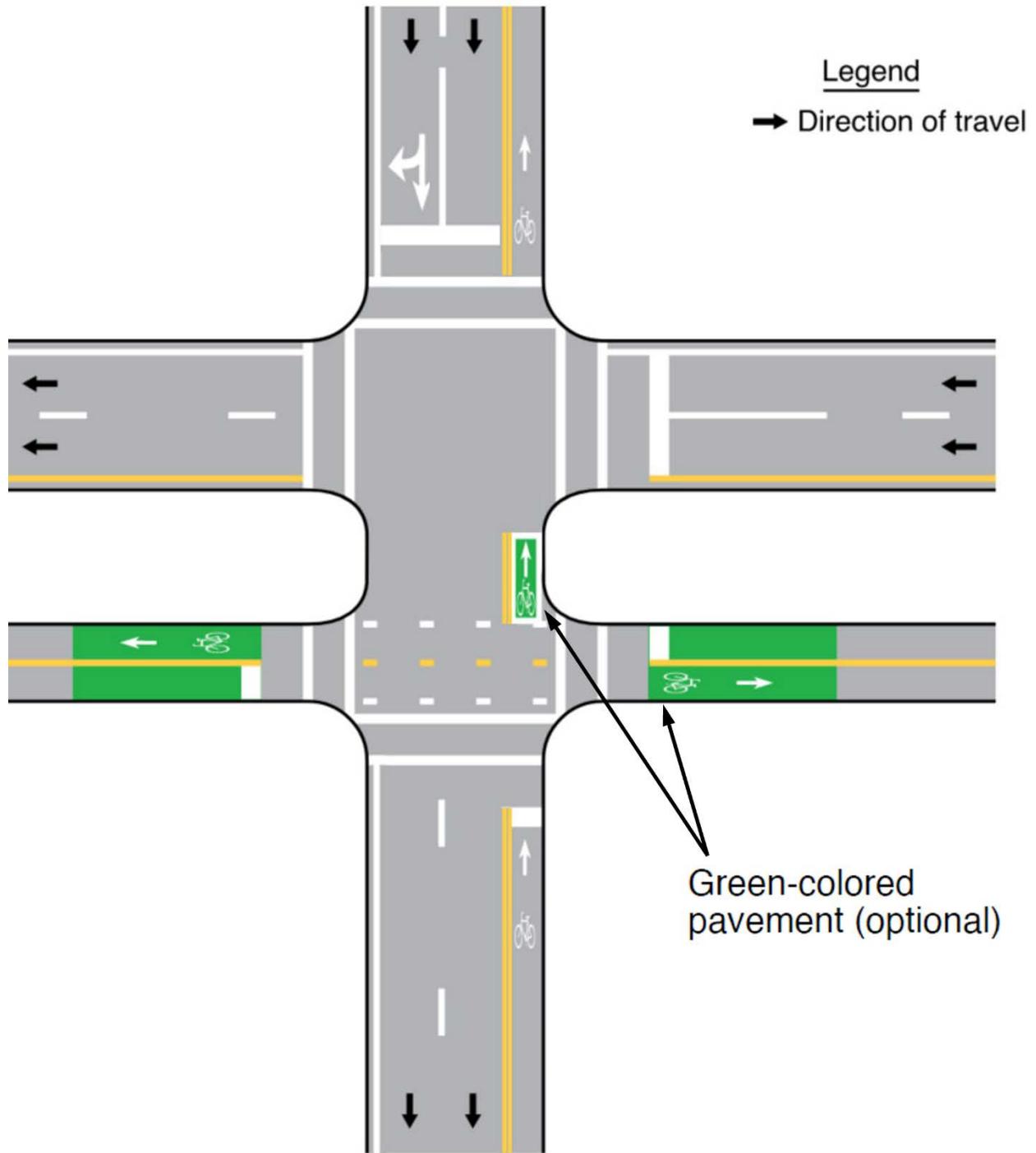
Figure 9E-11. Example of a Two-Stage Bicycle Turn Box at an Intersection with a Two-Way Bikeway Bicycle Facility
[Replace existing Figure 9E-11 with new Figure 9E-11 below]



161
162

163
164
165
166

Figure 9E-11a. Example of a Two-Stage **Bicycle** Turn Box Location at an **a**
Constrained Intersection with a Two-Way **Bikeway Bicycle Facility**
[Rename existing Figure 9E-11 to 9E-11a - no changes to figure]



167
168