



Plano

City of Excellence

Overview of Major Changes in the MUTCD 11th Edition

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Disclaimers

- I was not a part of the process to create the new 11th edition
- This overview was created by directly comparing 10th and 11th editions of the manual. I tried to catch as much as I could but there might be updates that were missed.
- This is currently adopted at a federal level
- States have 2 years to adopt a new state level MUTCD and they may change things to fit how the states operate



Compliance Dates

- Compliance Dates listed include the 2-year state adoption time
- Any items that do not have specific compliance dates should be replaced through systematic replacement and upgrade to bring everything into compliance.

Table 1B-1. Target **Compliance** Dates Established by the FHWA

MUTCD Section(s)	Subject Area	Specific Provision	Compliance Date
2B.64	Weight Limit Signs	Paragraph 14 - requirement for additional Weight Limit sign with the advisory distance or directional legend in advance of applicable section of highway or structure	5 years from the effective date of this edition of the MUTCD
2C.25	Low Clearance Signs (W12-2)	Paragraph 1 - Required posting of the Low Clearance Advance (W12-2) sign in advance of the structure	5 years from the effective date of this edition of the MUTCD
2C.25	Low Clearance Signs (W12-2a, W12-2b)	Paragraph 8 - Recommended posting of Low Clearance Overhead (W12-2a or 12-2b) signs on an arch or other structure under which the clearance varies greatly	5 years from the effective date of this edition of the MUTCD
3A.05	Maintaining Minimum Retroreflectivity	Implementation and continued use of a method that is designed to maintain retroreflectivity of longitudinal pavement markings (see Paragraph 1 of Section 3A.05)	September 6, 2026
8B.16	High-Profile Grade Crossings	Paragraphs 3 and 7 - Recommended installation of Low Ground Clearance and/or Vehicle Exclusion signs and detour signs for vehicles with low ground clearances that might hang up on high-profile grade crossings at locations with a known history	5 years from the effective date of this edition of the MUTCD
8D.09 through 8D.12	Highway Traffic Signals at or Near Grade Crossings	Assessment and determination of appropriate treatment to achieve compliance (preemption, movement prohibition, pre-signals, queue cutter signals)	10 years from the effective date of this edition of the MUTCD



Engineering Judgement

Section 1D.03

- Application of Engineering Judgement better defined
 - The decision to use a particular device at a particular location should be made based on engineering study or the application of engineering judgment by an engineer, someone under the direct supervision of an engineer, or other individual as duly authorized by State law to engage in the practice of engineering.
 - 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.



Section 2B.06

Yield/Stop control SHALL not be used for speed control



All-Way Stop Control Warrants

Section 2B.12 - 2B.17

10th Edition - Warrants

- 5+ correctable crashes in a 12-month period.
- Minimum volumes:
 - 300 vph for any 8 hours
 - Combined vehicular, pedestrian, and bike volume averages at least 200 units per hour for 8 hours
 - 85th-percentile speed exceeding 40mph: warrants can be 70% of above values

11th Edition - Warrants

- 10th Edition warrants are applied to 4-leg intersections.
- Adds reduced warrants for 3-leg intersections.
- Adds sight distance warrant for turning onto the uncontrolled approaches.



Update to Setting Speed Limits

Section 2B.21

- Removed the guidance that speed limit should be within 5 MPH of 85th percentile free flowing speed.
- Guidance: On urban and suburban arterials, and on rural arterials that serve as main streets through developed areas of communities, the 85th-percentile speed should not be used to set speed limits without consideration of all factors described in this Section (roadway environment, characteristics, geographic context, crash experience, free flowing speed distribution, review of past speed studies)

Weight Limit Restriction Signs

Section 2B.64

- New Standard: An additional weight limit sign, with an advisory distance or directional legend, shall be located in advance of the applicable section of highway or structure so that prohibited vehicles can detour or turn around prior to the limit zone
- **Compliance Date: 5 years from date of adoption of federal MUTCD**

Horizontal Alignment Warning Signs

Section 2C.05

- 10th Edition

Table 2C-5. Horizontal Alignment Sign Selection

Type of Horizontal Alignment Sign	Difference Between Speed Limit and Advisory Speed				
	5 mph	10 mph	15 mph	20 mph	25 mph or more
Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), Winding Road (W1-5), and Combination Horizontal Alignment/Intersection (W10-1) (see Section 2C.07 to determine which sign to use)	Recommended	Required	Required	Required	Required
Advisory Speed Plaque (W13-1P)	Recommended	Required	Required	Required	Required
Chevrons (W1-8) and/or One Direction Large Arrow (W1-6)	Optional	Recommended	Required	Required	Required
Exit Speed (W13-2) and Ramp Speed (W13-3) on exit ramp	Optional	Optional	Recommended	Required	Required

Note: Required means that the sign and/or plaque shall be used, recommended means that the sign and/or plaque should be used, and optional means that the sign and/or plaque may be used.

See Section [2C.06](#) for roadways with less than 1,000 ADT.



Horizontal Alignment Warning Signs

Section 2C.05

- 11th Edition

Table 2C-4. Application of Traffic Control Devices for Changes in Horizontal Alignment

A - Determination of the Need for Devices for Changes in Horizontal Alignment¹

Roadway Type	AADT			
	Less than 1,000	1,000-2,999	3,000-3,999	Greater than 3,999
Freeways and Expressways	Required	Required	Required	Required
Arterial or Collector without Pavement Markings	Optional	Recommended	Required	Required
Arterial or Collector with Pavement Markings ²	Optional	Recommended	Recommended	Required
All other roadways	Optional	Optional	Optional	Optional

¹ If devices are determined to be needed, the selection of the device(s) is based on Chart B below.

² An arterial or collector is considered to have pavement markings when either a center line, edge lines, or both are present.

B - Selection of Devices for Changes in Horizontal Alignment

Speed Differential ³	Devices for Change in Horizontal Alignment ³
5 mph	Pavement markings or advance horizontal alignment warning sign on paved roadways. Advance horizontal alignment warning sign on unpaved roadways. ⁴
10 mph	Advance horizontal alignment warning sign
15 mph	Delineators ⁵ and advance horizontal alignment warning sign
20 mph or more	Chevrons ⁵ and advance horizontal alignment warning sign

³ The provisions for the use of Horizontal Alignment warning signs and devices are contained in Section 2C.06. The need for devices is determined by Chart A above.

⁴ A roadway is considered to have pavement markings when either a center line, edge lines, or both are present.

⁵ Section 2C.06 contains information about the use of a One Direction Large Arrow (W1-6) sign in place of or to supplement delineators and chevrons.



Low Vertical Clearance Warning Sign

Section 2C.25

- Updated Standard: The Low Clearance Advance (W12-2) sign (see Figure 2C-6) shall be used to warn road users of vertical clearances less than 14 feet 6 inches, or vertical clearances less than 12 inches above the statutory maximum vehicle height, whichever is greater.
- New Standard: advanced signing for low clearance warnings.
- **Compliance Date: 5 years from date of adoption of federal MUTCD**



Changeable Message Signs

Section 2L

- New Standard: CMS shall display only traffic operational, regulatory, warning, and guidance information. Advertising or other messages not related to traffic control shall not be displayed on a CMS
- “alert” messages other than AMBER alerts that are unrelated to traffic or travel conditions shall not be displayed on CMS



Pavement Marking Retroreflectivity

Section 3A.05

- Pavement Markings should maintain retroreflectivity at or above 50 mcd/m²/lx under dry conditions for longitudinal markings on a roadway with speed limits of 35 MPH or greater.
- Suggested methods of measuring this retroreflectivity are described in "*methods for maintaining pavement marking retroreflectivity*" FHWA-SA-22-028, 2022 edition, FHWA
- There is a great video that goes into the measurement methods on FHWA's YouTube channel: <https://www.youtube.com/watch?v=xERr9nW9Yx0>
- **Compliance Date: September 6th, 2026**
- Raised Pavement Marker requirements have not changed if they are used as a substitute for lane markings



Pavement Marking Size 4” to 6”

Section 3B.09

- FHWA wanted to increase the standard lane line width from 4” to 6”. However, it was met with resistance from rural communities where it would be a significant maintenance cost increase.
- Support: Increasing edge linewidth from 4 inches to at least 6 inches can be a beneficial countermeasure on all facility types in both urban and rural areas



Crosswalk Marking Patterns

Section 3C

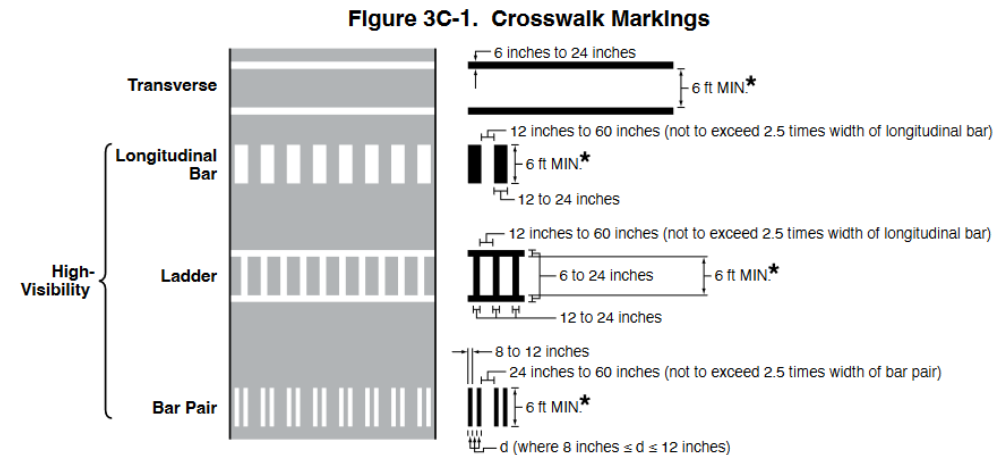
- 10th Edition standard: when crosswalk lines are used, they shall consist of solid white lines that mark the crosswalk. They shall not be less than 6 inches or greater than 24 inches.
- 11th Edition – Entire section dedicated to crosswalks
 - Crosswalk markings should be installed at all crossings controlled by traffic signals.
 - Engineering Study should be performed for crosswalks at uncontrolled approaches. **Section 3C.02** gives criteria to consider.
 - Crosswalk markings SHALL be provided at established crosswalks at non-intersection locations.



Crosswalk Marking Patterns

Section 3C

- If pavement mixtures are going to function as crosswalk markings, new standard to add white retroreflective additives to pavement mixtures
- Section 3H.03 has new standards on aesthetic surface treatments for crosswalks.
- Guidance to avoid transverse lines in favor of high-visibility markings

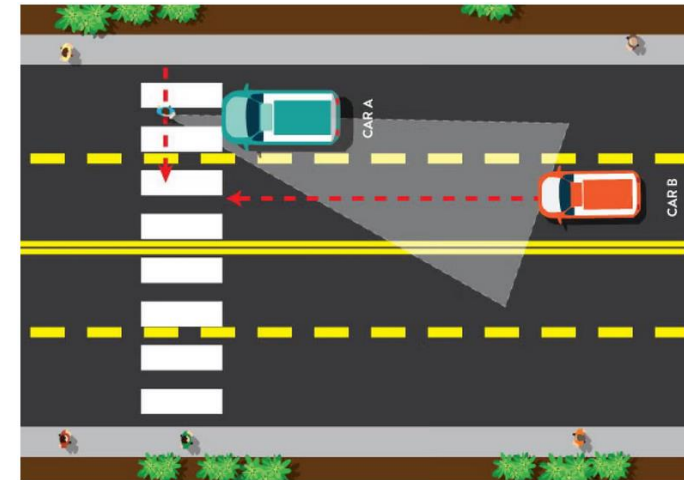


* Minimum crosswalk width shall be 8 feet where the posted speed limit is 40 mph or greater at a non-intersection crosswalk.

Crosswalk Marking Patterns

Section 3C

- Recommendations on when to install traffic calming measures to supplement safety measures at crosswalks
 - Roadway has 4+ lanes without a median & ADT of 12,000+
 - Roadway has 4+ lanes with a median & ADT of 15,000+
 - Posted speed limit is 40MPH+
 - Visibility issues that cannot be solved with parking restrictions
 - Crash study shows multiple threat crashes are a common issue

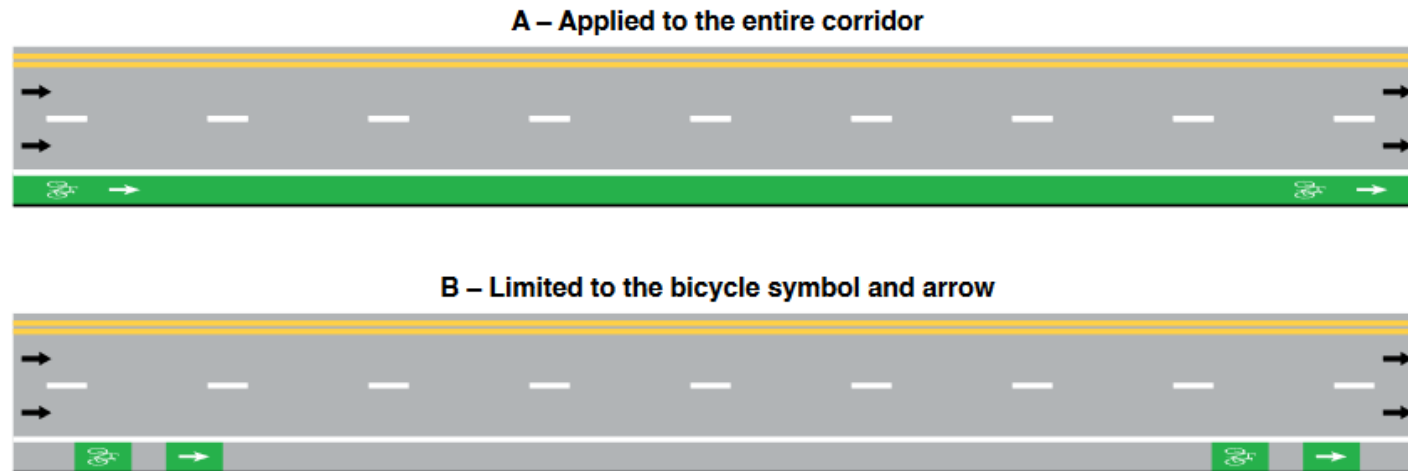


Green Colored Pavement for Bike Lanes

Section 3H.06

- Green colored pavement/markings are now solely limited to bicycle-only applications.
- There is a standard limiting it from use in electric vehicle charging, standard crosswalks, or shared-use lanes.

Figure 3H-4. Examples of Green-Colored Pavement Applications

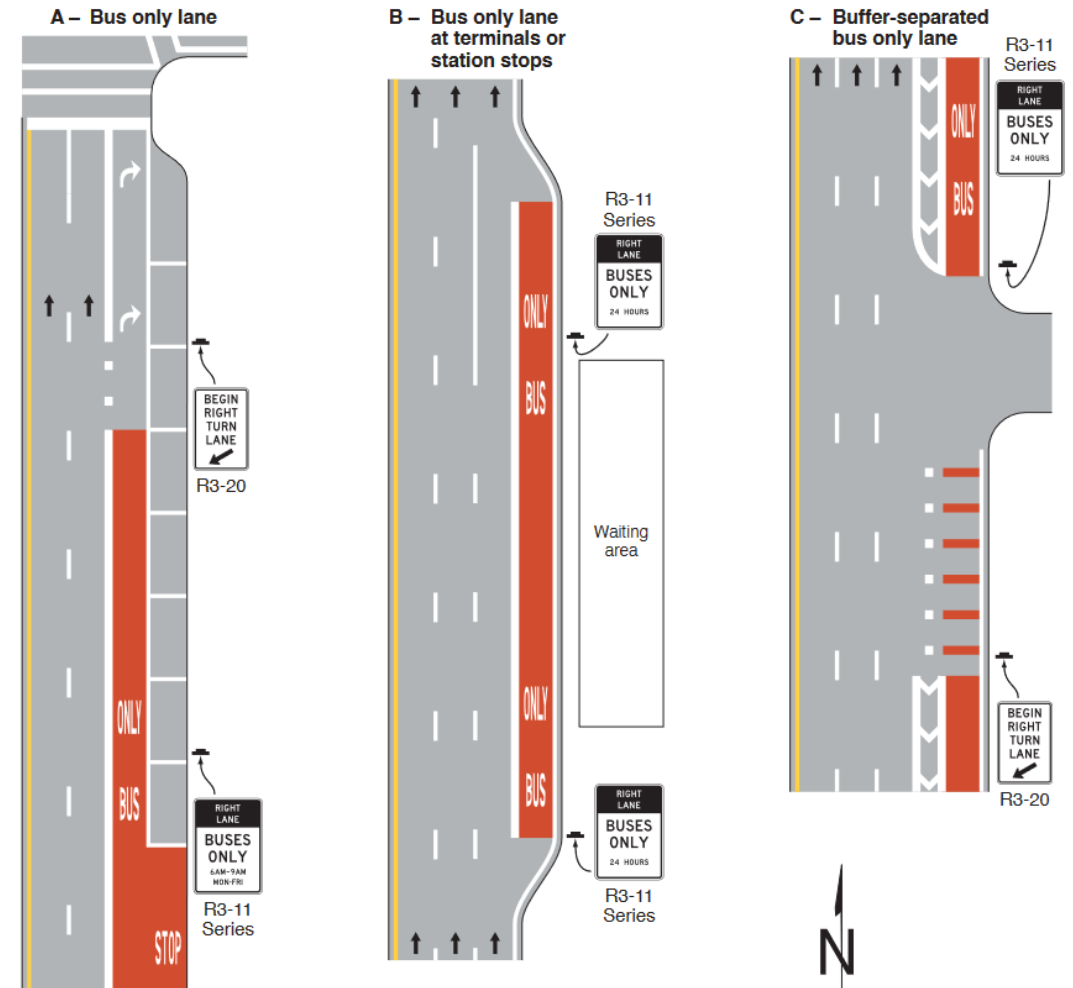


Red Colored Pavement for Transit Lanes

Section 3H.07

- Red colored pavement/markings can be used in lanes, areas, or locations where general traffic is not allowed to use, queue, wait, idle, or otherwise occupy the lane. It is solely used for public transit systems

Figure 3H-5. Examples of Red-Colored Pavement Applications



Signal Warrants

Section 4C

- Signal Warrants have dropped from a SHALL to a SHOULD. Putting more emphasis on using engineering judgement to determine when a signal should be considered.

Updated Signal Warrant #7 – Crash Experience

Section 4C.08

Table 4C-2. Minimum Number of Reported Crashes in a One-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	5	4	3	3
2 or more	1	5	4	3	3
2 or more	2 or more	5	4	3	3
1	2 or more	5	4	3	3

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-4. Minimum Number of Reported Crashes in a One-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	4	3	3	3
2 or more	1	10	9	6	6
2 or more	2 or more	10	9	6	6
1	2 or more	4	3	3	3

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-3. Minimum Number of Reported Crashes in a Three-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	6	5	4	4
2 or more	2 or more	6	5	4	4
1	2 or more	6	5	4	4

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-5. Minimum Number of Reported Crashes in a Three-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	16	13	9	9
2 or more	2 or more	16	13	9	9
1	2 or more	6	5	4	4

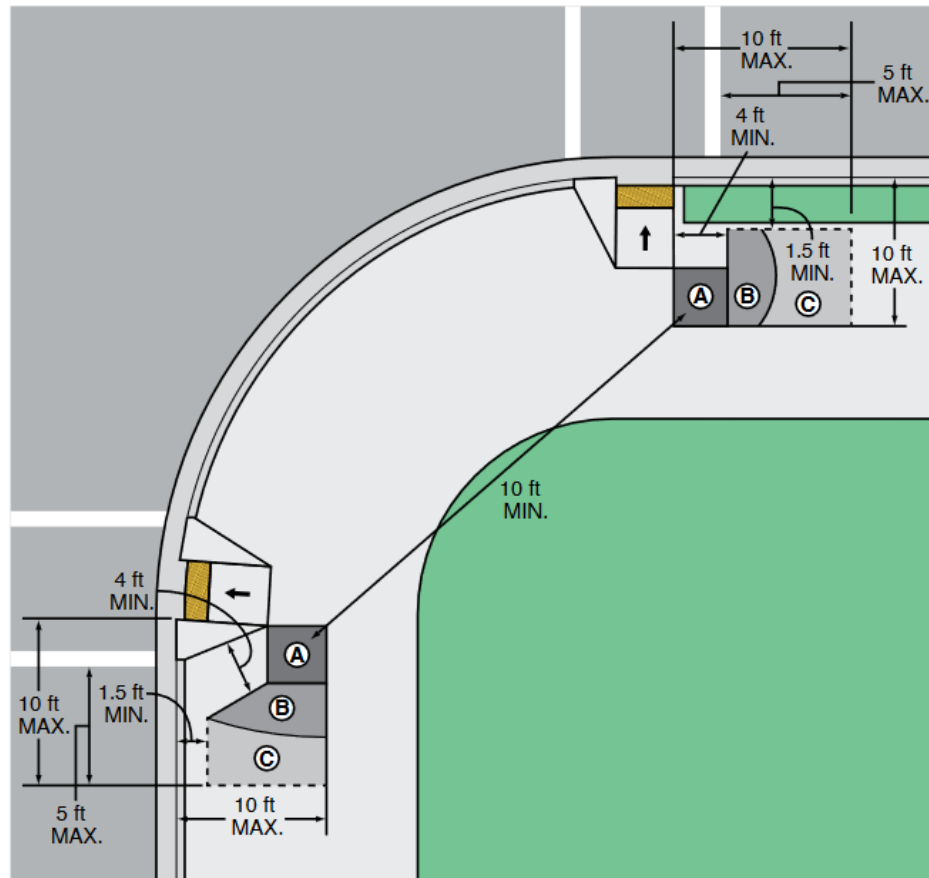
^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street



Pedestrian Push Buttons at Signalized Crosswalks

Section 4I.05

Figure 4I-2. Preferred Push Button Location Area



Notes:

1. The push button detector should be located 5 feet or less from the outside edge of the marked crosswalk farthest from the intersection.
2. The push button detector should be located no farther from the crosswalk than the stop line, if one is present.
3. A 4-foot minimum unobstructed pedestrian access route should be maintained.
4. The maximum (MAX.) and minimum (MIN.) dimensions shown in this figure are recommendations.
5. Two pedestrian push buttons on the same corner should be separated by at least 10 feet. The 10-foot dimension shown in this figure is in reference to the placement of the push buttons within their respective areas.
6. Figure 4I-3 shows typical push button locations.
7. This figure is not drawn to scale.

Legend

- Downward slope
- Ⓐ Preferred location for push button
- Ⓑ Acceptable location for push button
- Ⓒ Acceptable, but less desirable

Pedestrian Hybrid Beacons

Section 4J

- New Standard **4J.02E**: If the pedestrian hybrid beacon is installed at or immediately adjacent to an intersection with a minor street, a STOP sign shall be installed for each minor-street approach
- CROSSWALK STOP ON RED sign dropped from a standard to an option
- New option to use STOP ON STEADY RED or YIELD ON FLASHING RED AFTER STOP instead of CROSSWALK STOP ON RED

Pedestrian Hybrid Beacons

Section 4J

- New Standard: Bicycle signal faces shall not be used at pedestrian hybrid beacons
- New Standard: If a pedestrian hybrid beacon is placed into a flashing mode by a conflict monitor (malfunction management unit) or by a manual switch, the pedestrian hybrid beacon faces shall display flashing CIRCULAR YELLOW signal indications to each approach of the major street and the pedestrian signal heads shall revert to a dark (not illuminated) condition.

Accessible Pedestrian Signals – speech messages

Section 4K.03

- Style of speech walk messages drops from standard to guidance
 - E.g. “Broadway. Walk Sign is on to cross Broadway.”
- New standard for when speech walk messages use a secondary language, English is first and then the secondary language then alternates back and forth between the two.



Rectangular Rapid Flashing Beacons

Section 4L

- New section describing operation and design of RRFB
- New Standard: If pedestrian push button detectors (rather than passive detection) are used to actuate the RRFB indications, a PUSH BUTTON TO TURN ON WARNING LIGHTS/AWAIT GAP IN TRAFFIC (R10-25) sign (see Section 2B.58) shall be installed explaining the purpose and use of the pedestrian push button detector.

Warning Beacons

Section 4S.03

- Guidance on when to use 12" vs 8" indications
- Removed roadway clearance requirements when warning beacon is suspended above the roadway.
- New Standard: if an audible information device is used in conjunction with a pedestrian-actuated warning beacon at a pedestrian crossing, the audible information device shall not use vibrotactile or percussive indications.



Considerations for Automated Vehicles

Part 5

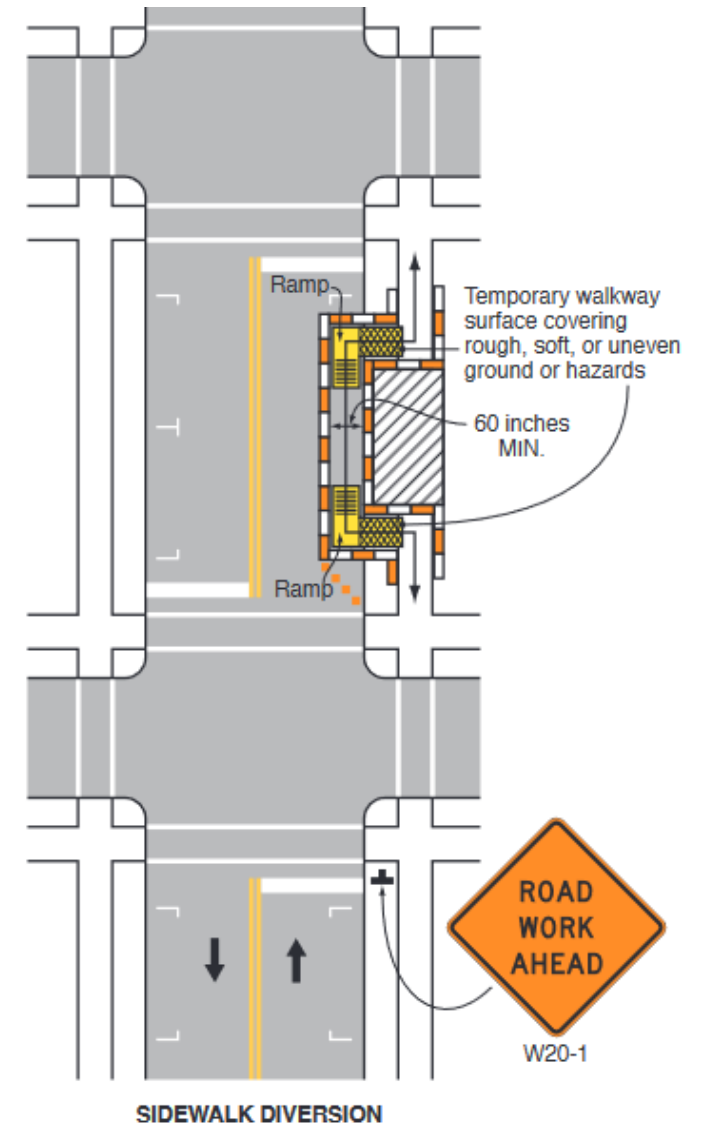
- Whole new section dedicated to automated vehicles. Describes levels of automation and most of the guidance is how to design signs, markings, signals, and traffic control devices in a consistent and easy to read manner for various automated sensors.
- New standards that allow “Scanning Graphics” to be placed on signs but they shall not be visible to the human eye.



Pedestrians in Work Zones

Section 6P-28 and 6P-29

- New design of pedestrian sidewalk diversion (shown on right)
- New Standard: Sidewalk or Crosswalk closure/modification signs shall include audible information devices



High Profile Grade Crossings

Section 8B.16

- Word message warnings and selective exclusion regulatory signs for specific vehicle types should be used in addition to, or in place of, low ground clearance grade crossing signs.
- Auxiliary plaques such as AHEAD, NEXT CROSSING, or USE NEXT CROSSING should be placed in advance at the nearest intersecting highway to permit a U-Turn.
- If engineering judgement dictates, advisory speed limit plaques should be posted
- A signed detour sign should be installed to guide potential hang-up vehicles to alternate crossings.
- **Compliance Date: 5 years from date of adoption of federal MUTCD**



Traffic Signals at or Near Grade-Crossings

Section 8D.09 – 8D.12

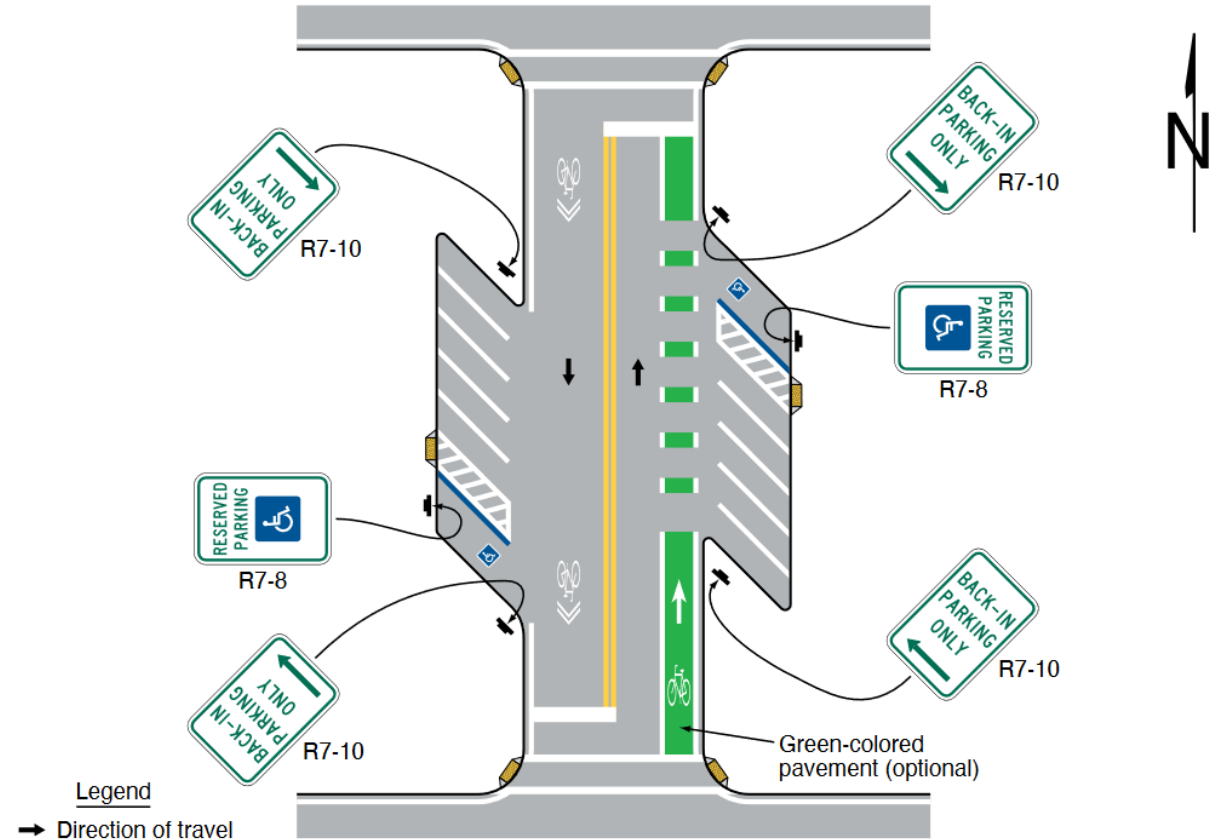
- 4 new treatments suitable for supplementing railroad crossing safety. Guidance on when each treatment is applicable is listed in Sections 8D.09 thru 8D.12:
 - Preemption
 - Movement Prohibitions
 - Pre-Signals
 - Queue Cutter Signals
- **Assessment and Determination of appropriate treatment to achieve long-term compliance is required within 10 years of adoption of federal MUTCD**

Traffic Control for Bicycle Facilities

Part 9

- Expands applications for bicycle lanes with example diagrams as shown to the right

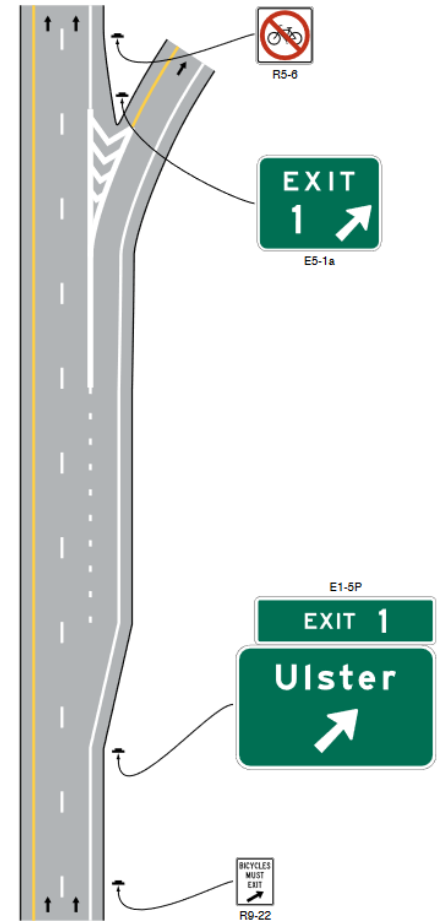
Figure 9B-3. Examples of Bicycle Facilities Adjacent to Back-In Parking



New Signs for Bicycle Facilities

Part 9

- Except Bicycle Sign R3-7bP
- Addition of bike lane to R3-8 Lane Assignment Signs
- Back-in-parking sign R7-10
- Bicycle Passing Clearance Sign R4-19
- Bicycle Use Shoulder Only Sign R9-21
- Signs for Bicycles on Freeways
- Two-stage bicycle turn box signs R9-23 series
- Bicycle Jughandle Signs



Bicycle Route Sign M1-9

Section 9D.07

- Change the design and color of bicycle route sign to be more in line with other bicycle signs.

10th Edition



M1-9

11th Edition



M1-9



Plano

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Thank you

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