MUTCD Workshop
INLTAP Core Course #8

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- Training
- Technical Assistance
- Resources
- Publications
- Research
- HELPERS
  - Roadway Safety
Today’s Agenda

• 8:30 – 10:30 (with breaks) Laura
  – MUTCD basics

• 10:30 – 11:10 Dave & Karen
  – INDOT & FHWA perspectives

• 11:10 – 11:30
  – Q & A with speakers

• 11:30
  – Lunch & Dismissal
What is the MUTCD?

- Manual on
- Uniform
- Traffic
- Control
- Devices
What is the MUTCD?

- **Manual**
  895 pages
What is the MUTCD?

• Uniform

No:

Ok:
What is the MUTCD?

- Traffic
- Control
- Devices
Which MUTCD should I use?

• USE the Indiana MUTCD
  – Published on INDOT website
  – 2011 IMUTCD, Revision #3
  – Can download sections or the entire PDF

• NOT the National MUTCD
Where do I find the Indiana MUTCD?

http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html

INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

CURRENT EDITION

2011 Indiana Manual on Uniform Traffic Control Devices with Revisions 1 & 2 & 3
The 2011 Indiana Manual on Uniform Traffic Control Devices with Revisions 1 & 2 & 3 is based on the revised 2009 National MUTCD and became effective on February 29, 2016

PAST EDITIONS

2011 Indiana Manual on Uniform Traffic Control Devices with Revisions 1 & 2
The 2011 Indiana Manual on Uniform Traffic Control Devices with Revisions 1 & 2 is based on the revised 2009 National MUTCD and became effective on April 16, 2014

2011 Indiana Manual on Uniform Traffic Control Devices with Revision #1
The 2011 Indiana Manual on Uniform Traffic Control Devices with Revision # 1 is based on the revised 2009 National MUTCD and became effective on October 19, 2012


The 2008 Indiana Manual on Uniform Traffic Control Devices was developed from the adopted version of the 2003 National MUTCD (Revisions 1 & 2) and the Indiana Supplement.


CONTACT INFORMATION

Dave Boruff
Manual on Uniform Traffic Control Devices

Your MUTCD Turns 80!

On November 7, 2015, the 80th birthday of the MUTCD, and throughout the year when you see an easy-to-read sign, a bright edge line marking on a foggy night, the countdown timer at a crosswalk, or a well-placed bike lane, take a moment to reflect on the eighty years of progress and innovation that the MUTCD embodies. This progress has resulted in safer, more efficient travel on our Nation's roads. Over the years, the MUTCD has unknowingly become the traveler's best friend and silent companion, guiding us on our way along the streets, bikeways, back roads, and highways. As the direct means of communication with the traveler, traffic control devices speak to us softly, yet effectively and authoritatively. From glass "cat's-eye" reflectors to glass beads to microprismatic sheeting, nighttime sign visibility has advanced significantly. Active devices at rail crossings save lives by giving us a positive message about train traffic. And countdown timers on pedestrian signals help us cross a busy street. So the next time you hit the pavement, or put your feet on the pedals, you can be sure that the MUTCD, through our dedicated professionals who make complex decisions on what devices to install, will help you get where you want to go safely, efficiently, and comfortably! The MUTCD...it's all about you!

Termination of Interim Approval 5

On January 25, 2016, the FHWA published a notice in the Federal Register terminating Interim Approval 5, which permitted the optional use of the Clearview letter style on positive-contrast highway guide sign legends. All highway agencies, including those agencies who received the FHWA's approval to use Clearview under Interim Approval 5, shall use the FHWA Standard Alphabets for all new and replacement signs. However, any existing sign that uses Clearview lettering may remain in place until it reaches the end of its useful service life. The Interim Approvals page contains additional information about implementation.

Request for Comments – Future Direction of the MUTCD

On December 22, 2015, the FHWA published a Request for Comments (Docket ID: FHWA-2015-0028) in the Federal Register soliciting input on future direction of the MUTCD. Topic areas include target audience and intended user, content and organization, and frequency of MUTCD editions. For your convenience, an electronic spreadsheet file has been posted to the docket for optional use in submitting comments. The docket closes February 18, 2016. The direct link to the docket is http://www.regulations.gov/#/documentDetail;D=FHWA_FRDOC_0001-1260.

Official Interpretation 209(09)-111 – International Symbol of Accessibility

On May 28, 2015, the FHWA issued Official Interpretation 209(09)-111 to clarify that it is not permissible in traffic control device applications to substitute alternative versions of the International Symbol of Accessibility for the official symbol depicted in the MUTCD and detailed in Standard Highway Signs.

Standard Highway Signs and Markings
# How to read the MUTCD?

<table>
<thead>
<tr>
<th>Heading</th>
<th>Font Style</th>
<th>Verb</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Bold Text</td>
<td>Shall</td>
<td>Required/Mandatory</td>
</tr>
<tr>
<td>Guidance</td>
<td>Italic Text</td>
<td>Should</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Need an Engineering Study or Judgment to deviate</td>
</tr>
<tr>
<td>Option</td>
<td>Normal Text</td>
<td>May</td>
<td>Permissive condition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Allowable modification to a Standard or Guidance</td>
</tr>
<tr>
<td>Support</td>
<td>Normal Text</td>
<td>(none)</td>
<td>Informational</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Additional Information</td>
</tr>
</tbody>
</table>
How to read the MUTCD?

Section 2B.05 STOP Sign (R1-1) and ALL WAY Plaque (R1-3P)

Standard:
01 When it is determined that a full stop is always required on an approach to an intersection, a STOP (R1-1) sign (see Figure 2B-1) shall be used.
02 The STOP sign shall be an octagon with a white legend and border on a red background.
03 Secondary legends shall not be used on STOP sign faces.
04 At intersections where all approaches are controlled by STOP signs (see Section 2B.07), an ALL WAY supplemental plaque (R1-3P) shall be mounted below each STOP sign. The ALL WAY plaque (see Figure 2B-1) shall have a white legend and border on a red background.
05 The ALL WAY plaque shall only be used if all intersection approaches are controlled by STOP signs.
06 Supplemental plaques with legends such as 2-WAY, 3-WAY, 4-WAY, or other numbers of ways shall not be used with STOP signs.

Support:
07 The use of the CROSS TRAFFIC DOES NOT STOP (W4-4P) plaque (and other plaques with variations of this word message) is described in Section 2C.59.

Guidance:
08 Plaques with the appropriate alternative messages of TRAFFIC FROM LEFT (RIGHT) DOES NOT STOP (W4-4aP) or ONCOMING TRAFFIC DOES NOT STOP (W4-4bP) should be used at intersections where STOP signs control all but one approach to the intersection, unless the only non-stopped approach is from a one-way street.

Option:
09 An EXCEPT RIGHT TURN (R1-10P) plaque (see Figure 2B-1) may be mounted below the STOP sign if an engineering study determines that a special combination of geometry and traffic volumes is present that makes it possible for right-turning traffic on the approach to be permitted to enter the intersection without stopping.
Does the MUTCD Apply to My Road?

Yes!

The MUTCD governs the design and use of traffic control devices for all streets, highways, bikeways, and private roads open to public travel regardless of type or class or the public agency, official, or owner having jurisdiction.
Liabilities and Risk

• You can’t eliminate risk – but you can manage it

• Liabilities
  – Regulatory – while there is no “MUTCD Police,” you may find that you can’t get certain funding if your signs and markings are non-compliant
  – Constituents – your residents expect safe roads
  – Tort liability – signs and pavement markings are low-hanging fruit for plaintiffs’ attorneys
The Indiana Manual on Uniform Traffic Control Devices

1. General Information
2. Signs
3. Markings
4. Signals
5. Low Volume Roads
6. Temporary Traffic Control
7. School Areas
8. Railroad
9. Bicycle Facilities
The Indiana Manual on Uniform Traffic Control Devices

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Section 1A.08
Gives local agencies the authority to place traffic control devices.

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

• Need a local ordinance for speed limits (non-statutory)
• Indiana Code
  – Stop & Yield Signs 9-21-8
  – Speed Limits 9-21-5
Section 1A.09

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.
Section 1A.13 Definitions

64. Engineering Judgment –
• Evaluation of available pertinent information
• Documentation of engineering judgment is not required

65. Engineering Study –
• Comprehensive analysis and evaluation
• An engineering study shall be documented
The Indiana Manual on Uniform Traffic Control Devices

1. General Information
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Section 2A.05 Classification of Signs

A. Regulatory signs give notice of traffic laws or regulations.
B. Warning signs give notice of a situation that might not be readily apparent.
C. Guide signs show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information.
Section 2A.06 Design of Signs

Uniformity in design shall include shape, color, dimensions, legends, borders, and illumination or retroreflectivity.

We have limited time to get the message across.

Standard designs aid in intuitive recognition.
PART 2
SIGNs
Sections 2A.06 and 2A.16
Do not mount signs on opposite side of post that obscures the shape of a stop or yield sign

No

Ok
Section 2A.06 Pictographs

- Simple, dignified, and devoid of any advertising
- The official designation adopted by a political jurisdiction
- The official seal adopted by a college/university

No:  

Ok:  

PART 2
SIGNS
Section 2A.07 Retroreflectivity & Illumination

Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night.

The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting.
Retroreflectivity
Section 2A.08 Maintaining Sign Retroreflectivity

- Implement assessment or management method
- Maintain regulatory and warning signs
- Retroreflectivity minimum levels in Table 2A-3
# PART 2
## SIGNS

### Table 2A-3. Minimum Maintained Retroreflectivity Levels

<table>
<thead>
<tr>
<th>Sign Color</th>
<th>Beaded Sheet (ASTM D4956-04)</th>
<th>Prismatic Sheet (ASTM D4956-04)</th>
<th>Additional Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III, IV, VI, VII, VIII, IX, X</td>
</tr>
<tr>
<td>White on Green</td>
<td>W*; G ≥ 7</td>
<td>W*; G ≥ 15</td>
<td>W ≥ 250; G ≥ 25</td>
</tr>
<tr>
<td></td>
<td>W*; G ≥ 7</td>
<td></td>
<td>Overhead</td>
</tr>
<tr>
<td>Black on Yellow or Black on Orange</td>
<td>Y*; O*</td>
<td>Y ≥ 50; O ≥ 50</td>
<td></td>
</tr>
<tr>
<td>White on Red</td>
<td>W ≥ 35; R ≥ 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black on White</td>
<td>W ≥ 50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. The minimum maintained retroreflectivity levels shown in this table are in units of cd/lx/m² measured at an observation angle of 0.2° and an entrance angle of -4.0°.

2. For text and fine symbol signs measuring at least 48 inches and for all sizes of bold symbol signs

3. For text and fine symbol signs measuring less than 48 inches

4. Minimum sign contrast ratio ≥ 3:1 (white retroreflectivity ÷ red retroreflectivity)

* This sheeting type shall not be used for this color for this application.

### Special Cases

- W3-1 – Stop Ahead: Red retroreflectivity ≥ 7
- W3-2 – Yield Ahead: Red retroreflectivity ≥ 7; White retroreflectivity ≥ 35
- W3-3 – Signal Ahead: Red retroreflectivity ≥ 7; Green retroreflectivity ≥ 7
- W3-5 – Speed Reduction: White retroreflectivity ≥ 50
- For non-diamond shaped signs, such as W14-3 (No Passing Zone), W4-4P (Cross Traffic Does Not Stop), or W13-1P,2,3,6,7 (Speed Advisory Plaques), use the largest sign dimension to determine the proper minimum retroreflectivity level.
Section 2A.10 Sign Colors

Standard colors – Table 2A-5 and in each section

Fluorescent Yellow Green - school zones, bike and pedestrian signs

Red, yellow, green and orange have fluorescent alternate versions

Purple sign?
PART 2
SIGNS

Make your own signs
• Follow MUTCD Section 2A & Standard Highway Signs
• Retroreflectivity must be met
  – Tape is not reflective
• Do not transfer symbols
• Specific standards/ guidelines for word messages
• Borders
• Size
PART 2
SIGNS

Section 2A.13 Word Messages

Ok

No
Section 2A.13 Word Messages
Section 2A.15 Enhanced Conspicuity
What is it and why do you need it?

Merriam-Webster:

Conspicuicy
noun | con·spi·cu·i·ty | \\ˌkän(t)-spə-ˈkyū-ə-tē\\

Definition of CONSPICUITY

: the quality or state of being conspicuous: CONSPICUOUSNESS

very easy to see or notice

attracting attention by being great or impressive
Figure 2A-1. Examples of Enhanced Conspicuity for Signs

A – W16-15P plaque above a regulatory or warning sign if the regulation or condition is new

B – Red or orange flags above a regulatory, warning, or guide sign

C – W16-18P plaque above a regulatory sign

D – Solid yellow, solid fluorescent yellow, or diagonally striped black and yellow (or black and fluorescent yellow) strip of retroreflective sheathing around a warning sign

E – Vertical retroreflective strip on sign support

F – Supplemental beacon
PART 2
SIGNS
PART 2
SIGNS

Is this noticeable? Is it correct?
Section 2A.16
Standardization of Location

Section 2A.19
Lateral Offset

*Where parking or pedestrian movements are likely to occur
Section 2A.16 Sign Location

C - MINOR CROSSROAD

D - URBAN INTERSECTION
Section 2A.19 Lateral Offset
Section 2A.21 Posts and Mountings
Within the Clear Zone, support anchors shall be crashworthy

- Breakaway
- Yielding
- Shielded by guardrail
Section 2A.22 Maintenance

- Policy in place
- Retroreflectivity
- Graffiti
- Vegetation
PART 2
SIGNS

✓ 2A – General
• 2B – Regulatory signs, barricades, gates
• 2C – Warning signs, object markers
• 2D – Guide signs (conventional roads)
• 2E – Guide signs (freeways/expressways)
• 2F – Toll road signs
• 2G – Preferential and managed lane signs
• 2H – General information signs
• 2I – General service signs
• 2J – Specific service (logo) signs
• 2K – Tourist-oriented directional signs
• 2L – Changeable message signs
• 2M – Recreational and cultural interest signs
• 2N – Emergency management signs
Sections 2B.01 & 2B.02
Regulatory Sign Application & Design

- Inform road users of traffic laws and regulations
- Usually rectangular in shape
Where side roads intersect a multi-lane street or highway that has a speed limit of 45 mph or higher, the minimum size of the STOP signs facing the side road approaches, even if the side road only has one approach lane, shall be 36 x 36 inches.
Section 1A.13 Definitions

123. Multi-Lane – more than one lane moving in the same direction. A multi-lane street, highway, or roadway has a basic cross-section comprised of two or more through lanes in one or both directions. A multi-lane approach has two or more lanes moving toward the intersection, including turn lanes.
### Sections 2A-11 Dimensions

The sizes shown in the Minimum columns shall only be used on low-speed roadways, alleys, and private roads open to public travel where the reduced legend size would be adequate for the regulation or warning or where physical conditions preclude the use of larger sizes.
Section 2B.04 Right-of-Way at Intersections
Section 2B.05 Stop Sign and All Way Plaque
Section 2B.06 Stop Sign Applications
Section 2B.07 Multi-Way Stop Applications
Section 2B.10 Stop Sign or Yield Sign Placement
• Shall be installed on right-hand side
• At intersections where all approaches are controlled by STOP signs, an ALL WAY supplemental plaque shall be mounted below each STOP sign.
Section 2B.10
When STOP sign visibility is restricted, a Stop Ahead sign shall be installed in advance of the STOP sign.
Section 2B.10 Stop & Yield Sign Placement

- Locate as close as practical to intersection, while optimizing visibility
- Locate no farther than 50 feet from edge of intersecting road
- Back-to-back signs should stay within edges of STOP or YIELD
- Where two roads intersect at an acute angle, the STOP or YIELD sign should be positioned at an angle, or shielded, so that the legend is out of view of traffic to which it does not apply.
Section 2B.13 Speed Limit Sign

• By default in Indiana, maximum speed is 55 mph on 2-lane rural roads, 30 mph in urban areas, 15 mph in alleys.

• Local authorities may determine and declare a reasonable and safe maximum limit on their roadways. (IC 9-21-5-6)
Section 2B.13 Speed Limit Sign

• Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering study.

• The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles.

• *Posted speed limit should be within 5 MPH of the free-flow 85th-percentile speed*

• *Consider re-evaluating speed zones after significant changes to roadway*
PART 2
SIGNS

• The speed limits displayed shall be in multiples of 5 mph.
• Signs shall be located at the points of change from one speed limit to another.
• Additional Speed Limit signs shall be installed beyond major intersections and at other locations where it is necessary to remind road users of the speed limit that is applicable.
Section 2B.13 Speed Limit Sign

A Reduced Speed Limit Ahead sign (see Section 2C.38) should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph.
Section 2B-11 Pedestrian Signs

- Placed in the roadway at the crosswalk location, not in advance of crosswalk
- Placed on the center line, on a lane line, or on a median island.
- Not post-mounted on the left-hand or right-hand side of the roadway
• Unless placed on a physical island, the sign support shall be designed to bend over and then bounce back to its normal vertical position when struck by a vehicle.

• Mounting height exception
Section 2B.32 Keep Right Signs

Shall not be installed on the right-hand side of the roadway where traffic must pass to the left of sign.
PART 2
SIGNS

✓ 2A – General
✓ 2B – Regulatory signs, barricades, gates
  • 2C – Warning signs, object markers
  • 2D – Guide signs (conventional roads)
  • 2E – Guide signs (freeways/expressways)
  • 2F – Toll road signs
  • 2G – Preferential and managed lane signs
  • 2H – General information signs
  • 2I – General service signs
  • 2J – Specific service (logo) signs
  • 2K – Tourist-oriented directional signs
  • 2L – Changeable message signs
  • 2M – Recreational and cultural interest signs
  • 2N – Emergency management signs
Chapter 2C Warning Signs

- Call attention to unexpected conditions on or adjacent to a roadway
- Should be needed to alert the driver of the need for some different behavior
- Their use, design, location, shall be based on engineering study or on engineering judgment
Chapter 2C Warning Signs

- Roadway alignment
- Road conditions
- Weather conditions
- Traffic-related
- Supplemental plaques
### Table 2C-2. Warning Sign and Plaque Sizes (Sheet 1 of 3)

<table>
<thead>
<tr>
<th>Sign or Plaque</th>
<th>Sign Designation</th>
<th>Section</th>
<th>Conventional Road</th>
<th>Expressway</th>
<th>Freeway</th>
<th>Minimum</th>
<th>Oversized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Single Lane</td>
<td>Multi-Lane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal Alignment</td>
<td>W1-1,2,3,4,5</td>
<td>2C.07</td>
<td>30 x 30*</td>
<td>36 x 36</td>
<td>36 x 36</td>
<td>36 x 36</td>
<td>48 x 48</td>
</tr>
<tr>
<td>Combination Horizontal Alignment/Advisory Speed</td>
<td>W1-1a,2a</td>
<td>2C.10</td>
<td>36 x 36</td>
<td>36 x 36</td>
<td>48 x 48</td>
<td>48 x 48</td>
<td>48 x 48</td>
</tr>
<tr>
<td>One-Direction Large Arrow</td>
<td>W1-6</td>
<td>2C.12</td>
<td>48 x 24</td>
<td>48 x 24</td>
<td>60 x 30</td>
<td>60 x 30</td>
<td>60 x 30</td>
</tr>
<tr>
<td>Two-Direction Large Arrow</td>
<td>W1-7</td>
<td>2C.47</td>
<td>48 x 24</td>
<td>48 x 24</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Chevron Alignment</td>
<td>W1-8</td>
<td>2C.09</td>
<td>18 x 24</td>
<td>18 x 24</td>
<td>30 x 36</td>
<td>36 x 48</td>
<td>24 x 30</td>
</tr>
<tr>
<td>Combination Horizontal Alignment/Intersection</td>
<td>W1-10,10a,10b,10c,10d,10e</td>
<td>2C.11</td>
<td>36 x 36</td>
<td>36 x 36</td>
<td>36 x 36</td>
<td>48 x 48</td>
<td>—</td>
</tr>
</tbody>
</table>

### Table 2C-3. Minimum Size of Supplemental Warning Plaques

<table>
<thead>
<tr>
<th>Size of Warning Sign</th>
<th>Size of Supplemental Plaque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rectangular</td>
</tr>
<tr>
<td></td>
<td>1 Line</td>
</tr>
<tr>
<td>24 x 24</td>
<td>24 x 12</td>
</tr>
<tr>
<td>30 x 30</td>
<td>24 x 12</td>
</tr>
<tr>
<td>36 x 36</td>
<td>—</td>
</tr>
<tr>
<td>48 x 48</td>
<td>30 x 18</td>
</tr>
</tbody>
</table>

Notes:
1. Larger supplemental plaques may be used when appropriate
2. Dimensions in inches are shown as width x height
Warning signs should be far enough apart for motorists to comprehend and react to each condition.
**Table 2C-4. Guidelines for Advance Placement of Warning Signs**

<table>
<thead>
<tr>
<th>Posted or 85th-Percentile Speed</th>
<th>Condition A: Speed reduction and lane changing in heavy traffic</th>
<th>Condition B: Deceleration to the listed advisory speed (mph) for the condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0^3</td>
<td>10^4 20^4 30^4 40^4 50^4 60^4 70^4</td>
</tr>
<tr>
<td>20 mph</td>
<td>215 ft 100 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>25 mph</td>
<td>225 ft 100 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>30 mph</td>
<td>460 ft 100 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>35 mph</td>
<td>565 ft 100 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>40 mph</td>
<td>670 ft 125 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>45 mph</td>
<td>860 ft 125 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>50 mph</td>
<td>1,100 ft 175 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>55 mph</td>
<td>1,200 ft 175 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>60 mph</td>
<td>1,250 ft 225 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
<tr>
<td>65 mph</td>
<td>1,350 ft 225 ft N/A</td>
<td>10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft</td>
</tr>
</tbody>
</table>

**Condition A:** Speed reduction and lane changing in heavy traffic

**Condition B to 0 MPH:** Stop and yield conditions

**Condition B to XX MPH:** Speed reduction in advance of hazard (e.g. curve)
Table 2C-4. Guidelines for Advance Placement of Warning Signs

<table>
<thead>
<tr>
<th>Posted or 85th-Percentile Speed</th>
<th>Advance Placement Distance(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Condition A: Speed reduction and lane changing in heavy traffic(^2)</td>
</tr>
<tr>
<td></td>
<td>0(^3)</td>
</tr>
<tr>
<td>20 mph</td>
<td>225 ft</td>
</tr>
<tr>
<td>25 mph</td>
<td>325 ft</td>
</tr>
<tr>
<td>30 mph</td>
<td>460 ft</td>
</tr>
<tr>
<td>35 mph</td>
<td>565 ft</td>
</tr>
<tr>
<td>40 mph</td>
<td>670 ft</td>
</tr>
<tr>
<td>45 mph</td>
<td>775 ft</td>
</tr>
<tr>
<td>50 mph</td>
<td>885 ft</td>
</tr>
<tr>
<td>55 mph</td>
<td>990 ft</td>
</tr>
<tr>
<td>60 mph</td>
<td>1,100 ft</td>
</tr>
<tr>
<td>65 mph</td>
<td>1,200 ft</td>
</tr>
<tr>
<td>70 mph</td>
<td>1,250 ft</td>
</tr>
<tr>
<td>75 mph</td>
<td>1,350 ft</td>
</tr>
</tbody>
</table>
Section 2C.06 Horizontal Alignment Warning Signs

• Uniform application conveys a consistent message and establishes driver expectancy

• Sign selection based on the amount of change in the roadway alignment
Section 2C.06 & 2C.07 Horizontal Alignment Signs

• Required in advance of horizontal curves on arterials and collectors with more than 1,000 vehicles per day.

• [https://gis.in.gov/apps/DOT/RoadwayInventory/](https://gis.in.gov/apps/DOT/RoadwayInventory/)

• Based on the speed differential between the roadways posted or statutory speed limit or 85th-percentile speed, whichever is higher, and the horizontal curve’s advisory speed.
### Table 2C-5. Horizontal Alignment Sign Selection

<table>
<thead>
<tr>
<th>Type of Horizontal Alignment Sign</th>
<th>Difference Between Speed Limit and Advisory Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mph</td>
</tr>
<tr>
<td>Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), Winding Road (W1-5), and Combination Horizontal Alignment/Intersection (W1-10 series) (see Section 2C.07 to determine which sign to use)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Advisory Speed Plaque (W1 3-1 P)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Chevrons (W1-8) and/or One Direction Large Arrow (W1-6)</td>
<td>Optional</td>
</tr>
<tr>
<td>Exit Speed (W1 3-2) and Ramp Speed (W1 3-3) on exit ramp</td>
<td>Optional</td>
</tr>
</tbody>
</table>

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.
Section 2C.08 Advisory Speed Plaque

- **Requires engineering study** (e.g. ball-bank indicator)

- **Supplements other warning sign; not installed as separate sign**

- Not a speed limit!
When advisory speed is ...

<table>
<thead>
<tr>
<th># of curves</th>
<th>Less than or equal to 30 mph</th>
<th>Greater than 30 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image1" alt="Sign W 1-1" /></td>
<td><img src="image2" alt="Sign W 1-2" /></td>
</tr>
<tr>
<td>2</td>
<td><img src="image3" alt="Sign W 1-3" /></td>
<td><img src="image4" alt="Sign W 1-4" /></td>
</tr>
<tr>
<td>3 or more</td>
<td><img src="image5" alt="Sign W 1-5" /></td>
<td><img src="image6" alt="Sign W 1-5" /></td>
</tr>
</tbody>
</table>
Section 2C.09 Chevrons

- Installed on outside of curve
- Installation height of 4 feet minimum (to bottom of sign)
### Table 2C-6. Typical Spacing of Chevron Alignment Signs on Horizontal Curves

<table>
<thead>
<tr>
<th>Advisory Speed</th>
<th>Curve Radius</th>
<th>Sign Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 mph or less</td>
<td>Less than 200 feet</td>
<td>40 feet</td>
</tr>
<tr>
<td>20 to 30 mph</td>
<td>200 to 400 feet</td>
<td>80 feet</td>
</tr>
<tr>
<td>35 to 45 mph</td>
<td>401 to 700 feet</td>
<td>120 feet</td>
</tr>
<tr>
<td>50 to 60 mph</td>
<td>701 to 1,250 feet</td>
<td>160 feet</td>
</tr>
<tr>
<td>More than 60 mph</td>
<td>More than 1,250 feet</td>
<td>200 feet</td>
</tr>
</tbody>
</table>

Note: The relationship between the curve radius and the advisory speed shown in this table should not be used to determine the advisory speed.
Section 2C.19 Road Narrows Sign

*Used when two vehicles cannot pass simultaneously due to abrupt change in pavement cross-section*

May omit sign on local roads with posted speed $\leq 30$ mph

Section 2C.20 Narrow Bridge Sign

*Used when a two-way roadway has 16-18 ft clearance or lane widths are less than approach width*
Section 2C.21 One Lane Bridge Sign

*Used when clear roadway width is < 16 ft or < 18 ft with high truck percentage or limited sight distance*

Section 2C.26 Dead End/No Outlet Signs

DEAD END used at single road ending in dead end or cul-de-sac

NO OUTLET used at entrance to road “network” (e.g. subdivision) with no other exit
Figure 2C-9. Intersection Warning Signs and Plaques

- W1-7
- W2-1
- W2-2
- W2-3
- W2-4
- W2-5
- W16-17P
- W16-12P
- W2-6
- W2-7L
- W2-7R
- W2-8
- W4-4P
- W4-4aP
- W4-4bP
- W25-1
- W25-2
Section 2C.53 Supplemental Plaques

- Not installed alone
- Installed below sign, unless otherwise indicated
- Installed on same post
- Matches warning sign

Figure 2C-12. Supplemental Warning Plaques

Note: The background color (yellow or fluorescent yellow-green) shall match the color of the warning sign that it supplements.
Section 2C.59 Cross Traffic Does Not Stop Plaque

Mounted under stop sign

- CROSS TRAFFIC DOES NOT STOP
  - W4-4P
- TRAFFIC FROM LEFT DOES NOT STOP
  - W4-4aP
- ONCOMING TRAFFIC DOES NOT STOP
  - W4-4bP
Section 2C.63 & 2C.64 Object Markers

- Obstructions within the roadway require Type 1 or Type 3 object markers and corresponding pavement markings
- Obstructions adjacent to the roadway may be delineated with Type 2 or Type 3 object markers
- The end of a roadway may be delineated with a Type 4 object marker
PART 2
SIGNS

Section 2C.63 & 2C.64 Object Markers

Mounting height of 4 ft. to bottom of sign
PART 2
SIGNS

✓ 2A – General
✓ 2B – Regulatory signs, barricades, gates
✓ 2C – Warning signs, object markers
• 2D – Guide signs (conventional roads)
• 2E – Guide signs (freeways/expressways)
• 2F – Toll road signs
• 2G – Preferential and managed lane signs
• 2H – General information signs
• 2I – General service signs
• 2J – Specific service (logo) signs
• 2K – Tourist-oriented directional signs
• 2L – Changeable message signs
• 2M – Recreational and cultural interest signs
• 2N – Emergency management signs
Section 2D Guide Signs

- Direct and inform road users to aid in navigation
- Usually rectangular or square sign with green background and white lettering
Acceptable colors:

- White on green
- White on blue
- White on brown
- Black on white
Section 2D.43 Street Name Signs

- Combination of uppercase and lowercase letters
- 6”/4.5” uppercase/lowercase (min.) on two-lane roads with posted speed > 25 MPH
- 4”/3” uppercase/lowercase (min.) on two-lane roads with posted speed ≤ 25 MPH
- Border may be omitted
Quiz

PARE

CEDA
Quiz
The Indiana Manual on Uniform Traffic Control Devices

1. General Information
2. Signs
3. Markings
4. Signals
5. Low Volume Roads
6. Temporary Traffic Control
7. School Areas
8. Railroad
9. Bicycle Facilities
• Provide guidance of travel path
• Positive guidance for road users
• Convey regulations, guidance, or warnings
• **Must be visible at night**
Section 3A.02 Colors

- White
- Yellow
- Red
- Blue
- Purple
- Black
<table>
<thead>
<tr>
<th>Pavement Marking</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken Yellow</td>
<td></td>
</tr>
<tr>
<td>Double Solid Yellow</td>
<td></td>
</tr>
<tr>
<td>Solid Yellow</td>
<td></td>
</tr>
<tr>
<td>Broken White</td>
<td></td>
</tr>
<tr>
<td>Double Solid White</td>
<td></td>
</tr>
<tr>
<td>Solid White</td>
<td></td>
</tr>
<tr>
<td>Dotted White</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3A.06 Widths & Patterns of Longitudinal Markings

- Normal line is 4-6” wide
- Broken (skip) line is 10 ft. segment and 30 ft. gap
Section 3B.01 – 3B.03 Yellow Pavement Markings

Center Lines Required

• All paved urban arterials and collectors
  – 20’ or more width
  – 6,000 veh/day or more

• Two-way streets with 3+ lanes
Section 3B.01 – 3B.03 Yellow Pavement Markings

Center Lines Recommended

- All urban arterials and collectors
  - 20’ or more width
  - 4,000 veh/day or more
- All rural arterials and collectors
  - 18’ or more width
  - 3,000 veh/day or more
- Any road where engineering study indicates need

Engineering Judgment for roads less than 16 ft.
Section 3B.01 Yellow Center Line
A single solid yellow line shall not be used as a center line marking on a two-way roadway.
Section 3B.04 - 3B.09 White Pavement Markings

Edge Lines Required

- All paved rural arterials
  - 20’ or more width
  - 6,000 veh/day or more
- All freeways and expressways
Section 3B.04 - 3B.09 White Pavement Markings

Edge Lines Recommended

• All rural arterials and collectors
  – 20’ or more width
  – 3,000 veh/day or more

• Any road where engineering study indicates need
Section 3B.16 Stop lines

Stop lines shall indicate the point at which the stop is intended or required to be made.
Section 3B.18  Crosswalk Markings

6” – 24” wide solid white lines

Ok

No
Section 3C.01
Roundabout Markings
Chapter 3F Delineators

Delineation matches color of adjacent edge line

- CRF=15% Fatalities, 6% Injuries
- CRF=20% - 30% Run-Off-Road
Section 3J.01 Longitudinal Rumble Strip Markings
EXAMPLE SAFETY BENEFITS
Night Time and Wet Weather Visibility
The Indiana Manual on Uniform Traffic Control Devices

PART 1
GENERAL

PART 2
SIGNS

PART 3
MARKINGS

PART 4
HIGHWAY TRAFFIC SIGNALS

PART 5
TRAFFIC CONTROL DEVICES FOR LOW-VOLUME ROADS

PART 6
TEMPORARY TRAFFIC CONTROL

PART 7
TRAFFIC CONTROL FOR SCHOOL AREAS

PART 8
TRAFFIC CONTROL FOR RAILROAD AND LIGHT RAIL TRANSIT GRADE CROSSINGS

PART 9
TRAFFIC CONTROL FOR BICYCLE FACILITIES

1. General Information
2. Signs
3. Markings
4. Signals
5. Low Volume Roads
6. Temporary Traffic Control
7. School Areas
8. Railroad
9. Bicycle Facilities
A low-volume road shall be a facility lying outside of built-up areas of cities, towns, and communities, and it shall have a traffic volume of less than 400 AADT.

A low-volume road shall not be a freeway, an expressway, an interchange ramp, a freeway service road, a road on a designated state highway system, or a residential street in a neighborhood.

The needs of unfamiliar road users for occasional, recreational, and commercial transportation purposes should be considered.
The Indiana Manual on Uniform Traffic Control Devices

1. General Information
2. Signs
3. Markings
4. Signals
5. Low Volume Roads
6. Temporary Traffic Control
7. School Areas
8. Railroad
9. Bicycle Facilities
PART 7
TRAFFIC CONTROL FOR SCHOOL AREAS

• CHAPTER 7A GENERAL
• CHAPTER 7B SIGNS
• CHAPTER 7C MARKINGS
• CHAPTER 7D CROSSING SUPERVISION
School Signing Example
Section 7B.13 School Bus Stop Ahead

Section 7B.14 School Bus Turnaround

- *Used when bus stop/turnaround is not visible to road users for an adequate distance*

- *And cannot be relocated to provide adequate sight distance*
Chapter 7D Crossing Guards
Contact information: Laura Slusher
Indiana LTAP
Islusher@purdue.edu
765-494-7038
www.purdue.edu/INLTAP
Happy Birthday MUTCD!

- MUTCD is 80 Years Old!
- Born on November 7, 1935

- 1927 US Standard Road Markers and Signs by AASHO
Need for Navigation

Rand McNally & John Brink

Initially used letters & symbols to name routes

Competitors had other naming systems and maps

In the early 1920s, representatives from Wisconsin, Minnesota, and Indiana toured several States with the intent of developing a basis for uniform signs and road markings.
How many editions of the MUTCD have been issued?

10 - Including the 2009 Edition
How has the STOP Sign changed?

1930s

1920s

Early 1950s

1940s

1960s

Today

Gene Hawkins
Texas Transportation Institute
Compliance – Signal Intervals

• Yellow and Red Clearance intervals
  - The duration of the yellow change interval shall be determined using engineering practices. When used, the duration of the red clearance interval shall be determined using engineering practices.

• Traffic Signal, Pedestrian Interval and Signal Phases
  - Pedestrian change interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 3 seconds.

![Pedestrian Intervals Diagram]

The above figure from the MUTCD shows the components of pedestrian signal timing and the manner in which they may be used.

Legend:
- G = Green Interval
- Y = Yellow Change Interval
- R = Red Clearance Interval
- Red = Red because conflicting traffic has been released
Next Compliance Dates

<table>
<thead>
<tr>
<th>2009 MUTCD Section No</th>
<th>2009 MUTCD Section Title</th>
<th>Specific Provision</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B.40</td>
<td>ONE WAY Signs (R6–1, R6–2)</td>
<td>New requirements in the 2009 MUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10).</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>2C.06 through 2C.14</td>
<td>Horizontal Alignment Warning Signs</td>
<td>Revised requirements in the 2009 MUTCD regarding the use of various horizontal alignment signs (see Table 2C–5).</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>8B.03, 8B.04</td>
<td>Grade Crossing (Crossbuck) Signs and Supports</td>
<td>Retroreflective strip on Crossbuck sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04).</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>8B.04</td>
<td>Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings</td>
<td>New requirement in the 2009 MUTCD for the use of STOP or YIELD signs with Crossbuck signs at passive grade crossings.</td>
<td>December 31, 2019</td>
</tr>
</tbody>
</table>

- The compliances dates mandate when replacement of existing TCDs in field.
- New installations shall be in compliance with current Indiana MUTCD.
- If no compliance date, jurisdictions are to upgrade existing TCDs in the field over time, as part of a systematic upgrading program.
One Way Signs

- Divided Highways with Medians
- ONE WAY Signs at T-intersections (Figure 2B-14)

At unsignalized T-intersections, ONE WAY signs shall be placed on the near right and the far side of the intersection facing traffic on the stem approach.

At signalized T-intersections, ONE WAY signs shall be placed near the appropriate signal faces.
Horizontal Curve Warning

Table 2C–5. Sign Selection

10mph difference between Speed Limit & Advisory Speed

- **SIGN REQUIRED**

15mph difference between Speed limit and Advisory Speed

- **SPEED PLAQUE**
- **CHEVRONS AND/OR ONE DIRECTION LARGE ARROW**
Section 8B.03 Grade Crossing Sign (Crossbucks)

- 2” white retroreflective strip on the back of each crossbuck blade, and on the front and back of crossbuck sign supports

Compliance Date: Dec. 31, 2019
Rail Grade Crossing Sign

Section 8B.04 Passive Crossings

- YIELD or STOP sign required at all passive crossings

- A YIELD sign shall be the default traffic control device for Crossbuck Assemblies unless an engineering study determines that a STOP sign is appropriate
Rail Crossing Warning Signs and Pavement Markings

Crossbuck sign shall be used on each highway approach.

Grade crossing pavement markers are required on most roads, with a few exceptions.
Clearview Font

- Termination- January 25, 2016 Federal Register
- Existing signs that use Clearview lettering may remain in place until it reaches the end of its useful service life.
- Signs ordered or fabricated prior to the notice, with the Clearview lettering can still be installed, no new signs can be ordered with the Clearview font.
Pictographs/Street Name Signs

Section 2A.06 Pictographs
• Simple, dignified, and devoid of any advertising
• The official designation adopted by a political jurisdiction
• The official seal adopted by a college/university

Section 2D.43 Street Name Signs
• Height and width shall not exceed the Upper-case letter height of the street name
• The pictograph should be positioned to the left of the street name

**NO:**

**Yes:**
Evolution of a Street Name Sign
FHWA issued an official ruling regarding the “International Symbol of Accessibility” on May 28, 2015.

The alternative symbol designs have not been adopted or endorsed by the U.S. Access Board,

It is the official interpretation of the FHWA that the alternative symbols are not “unmistakably similar” to the adopted symbols and are not acceptable for use in traffic control device applications.
Bridge Safety – Low Clearance

• SHALL warn road users of clearances less than 12 inches above the statutory maximum vehicle height. (Section 2C.27)

• INDOT - the W12-2 sign in advance of the restriction, when the vertical clearance is less than or equal to 14’-6”, with additional signing or conspicuity enhancement measures, such as fluorescent yellow sheeting, used on a case-by-case basis.
• A bridge must be posted if the Rating Factor for H-20 <0.8 (inventory) or any other legal load (i.e. rating vehicles) is <1.0

• Per INDOT policy, R12-1 (single tonnage) is the recommended sign

• Per the MUTCD 6F.10, R12-1 is required at the bridge; however it is also recommended at the intersection(s) prior to the bridge (best practice).
Bicycle Facilities

Bicycle TCD Implementation Options

• **Experimentation**
The FHWA must approve the experiment before it begins.
Provides known experimentation options with design elements that are required for an experimentation.

• **Interpretation**
Any jurisdiction that wishes to use a device or application that has received Interim Approval must submit a written request to the FHWA Interpretation Letter and design that has been approved.
• Request for Comments (RFC) on the Future Direction of MUTCD

• The next edition of the MUTCD is currently targeted for publication in late 2018 - *(That’s not a promise!)*
Indiana’s Manual on Uniform Traffic Control Devices

David Boruff
Manager, Office of Traffic Administration, INDOT

May 12, 2016
Traffic Administration Office

- Located at the Central Office

- Purpose: To support INDOT’s task of providing effective traffic control.
Traffic Administration Office

- **Joe Bruno**
  - Signals and Pavement Markings
  - 317-234-7949; jbruno@indot.in.gov

- **Lalit Garg**
  - Signing and Lighting
  - 317-234-7948; lgarg@indot.in.gov

- **Emily Towles**
  - Computer Aided Drafting, Record Keeping
  - 317-234-7947; etowles@indot.in.gov
Traffic Administration Office

- Developing traffic & safety related standards and policies
  - Collaborative effort with
    - INDOT districts, design, construction
    - Industry - manufacturers, contractors, consultants
  - Current work
    - Ground mounted panel sign supports
      - Addresses fatigue issue & allows for larger signs
    - Fluorescent yellow sheeting for all warning signs
    - High friction surface treatment
Traffic Administration Office

- Overhead Sign Structure Inspections

- Inspections by Collins Engineers
- About 1/3 of our 3800 structures have been inspected
- Inspections to be completed by 2021
Traffic Administration Office

- Interstate Logo Signing Program
  - Indiana Logo Sign Group
  - 1796 customers/861 mainline signs
  - INDOT’s revenue share:
    - $550,000 in 2015
    - ~$900,000 by 2017
Traffic Administration Office

- **Product Testing & Approval**
  - **Portable Traffic Signals**
    - 3 models approved:
      - John Thomas Inc
      - Horizon
      - Ver-Mac
Traffic Administration Office

- **Product Testing & Approval**
  - Solid State Luminaires
    - Lists for high mast, roadway, and underpass
INDOT & The MUTCD

- MUTCD use by others at INDOT
  - Designers- developing/reviewing plans
  - District Traffic- signal warrants studies, signing and marking needs
  - District Construction, Work Zone Safety- traffic control
  - Sign Shop- sign/lettering sizes (also refer to the Standard Signs and Markings Book)

- Traffic Administration is the focal point for MUTCD work.
Our Work w/ the MUTCD

Answering questions/providing guidance

Requestors:
- INDOT Staff, Consultants, Contractors, Local Agencies, Attorneys, Private Citizens

Topics:
- Temporary traffic control, special sign designs, hard copies of the current Indiana Manual, older versions
- Often we need to research before answering
Our Work w/ the MUTCD

- **Use of devices not in the MUTCD**
  - FHWA Approval needed
  - Have made 6 such requests
  - Alternative Bike Signs
    - Green background distinguishes from US vehicular route
    - Requested on behalf of local agencies as well
Our Work w/ the MUTCD

- Approved US Bike Routes:
  - USBR 35
    - north-south route
    - middle of state
  - USBR 38
    - east-west
    - northwest
  - USBR 50
    - East-west
    - central
Our Work w/ the MUTCD

- Experimental Requests

- Worker Awareness Sign
  - Fluorescent yellow green background is not MUTCD compliant
  - Request submitted earlier this year/approval pending
Our Work w/ the MUTCD

- **Input on changes to the Manual**
  - Recommendations made through
    - AASHTO Subcommittee on Traffic Engineering
      - Topics have included:
        - Parking/No Parking signing
        - Stop vs Yield signing; All way stops
        - Future reorganization of the MUTCD
  - Public comment period
    - Prior to Final Rule Making
    - Can submit to FHWA website or send by mail.
Our Work w/ the MUTCD

- Developed the 2011 Indiana MUTCD
  - Indiana Code puts the responsibility on INDOT
    - Delegated to Traffic Administration
  - ~75 variations from the 2009 National Manual
    - Variations based on state law and practices.
  - Per Federal regulations it must be in substantial conformance with National Edition
  - The IMUTCD is a reference for all in Indiana- not just an INDOT document
Our Work w/ the MUTCD

- **2011 Indiana MUTCD (cont.)**
  - First Step: determining Indiana variations to the 2009 National MUTCD
    - Done by committees, 50 people involved including consultants and local agency officials
  - Second Step: FHWA concurrence
  - Third Step: INDOT Executive Office adoption
    - Signed the “Order of Adoption” as required by the Indiana Code
  - Fourth Step: Posting it to the INDOT website:
    - [http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html](http://www.in.gov/dot/div/contracts/design/mutcd/mutcd.html)
Our Work w/ the MUTCD

2011 IMUTCD Revisions

- Process is similar to adopting a new edition
  - Oversight committee and FHWA concurrence
  - INDOTs executive office adopts
- Just adopted the third revision
  - Recommendation for crosswalk lines at diagonal curb ramps
  - RED/YELLOW Lens AFADs now allowed
Our Work w/ the MUTCD

- **AFADs Types**
  - STOP/SLOW paddle
  - RED/YELLOW Lens

  allowed as of March 2016
Our Work w/ the MUTCD

- Automated Flagger Assistance Devices (AFADs)
  - A safety enhancement- gets the flagger off the road
  - Can reduce costs of flagging- one flagger can control both approaches w/ good sight distance
  - IMUTCD Sections 6E.04 through 6E.06
Our Work w/ the MUTCD

- Keeping a list of Indiana variations
  - Used with the National MUTCD hard copies

- Posting past IMUTCD editions
  - Website has editions back 2003
  - Older editions
    - Not posted yet but beginning to work on it
    - Will start with the 1988 edition and work backwards to the 1938 edition
Contact Info

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Manager, Office of Traffic Administration
Office: 317-234-7975
e-mail: dboruff@indot.in.gov