Updated Layout

- Paragraphs are numbered.
- Standard Statements are bolded.
- Guidance statements are italicized.
- Metric values in appendix.

Updated Layout

Section 2A.12 Symbols

- Standard: Symbol designs shall in all cases be "Standard Highway Signs and Marking Support:"
- New symbol designs are adopted by the 
determine road users comprehension, sign:
- Sometimes a change from word means 
transition. Therefore, this Manual sometime 
symbol signs:
- Guidance:
- New warning or regulatory symbol in 
educational plaque:
- Option: 
- Educational plaques may be left in place 
and/or local highway agencies to compounding, and sign legibility.

Sign Colors

- Optional use of fluorescent colors including fluorescent red
- Require fluorescent yellow-green color for school area signs (Removed yellow for school area signs)
- Optional use of fluorescent yellow-green color for pedestrian and bicycle application signs

New Option for the Use of Fluorescent Colors

Fluorescent yellow
Standard yellow

New and Revised Sign Size Tables

- Updated/expanded table for regulatory sign sizes
- New detailed sign size tables:
  - Warning signs
  - Conventional road guide signs
  - Freeway/expressway guide signs
  - General service signs
  - General information signs

Symbols from One Type of Sign Shall Not be Used on a Different Type of Sign

The playground symbol that is used on warning signs cannot be used on guide signs

Not acceptable!
Size of Sign Lettering should be Based on 1 inch of Letter Height per 30 feet of Legibility

- Based on 20/40 vision
- 1988 and earlier MUTCDs were 1 inch per 50 feet of legibility based on 20/20 vision
- 2003 MUTCD recommended 1 inch per 40 feet based on 20/33 vision

Lettering for Place Names and Destinations

- Mixed-case lettering required for names of places, streets, and highways for guide signs
- Mixed-case lettering consists of an initial upper-case letter followed by lower-case letters
- Letter height is specified as the height of the initial upper-case letter

New Options for Sign Conspicuity Enhancement

Heights and Lateral Locations of Signs

The use of 2-WAY, 3-WAY, and 4-WAY plaques is prohibited.
ALL-WAY plaque remains as a “shall” if STOP signs are used on all approaches

New plaque that may be used with STOP sign in special conditions
**Signs on Back of STOP/YIELD Signs**

- Cannot obscure shape of STOP or YIELD sign
- Should stay within edges of STOP or YIELD sign
- Can have inventory stickers or installation dates on back

**In-Street Pedestrian Crossing Signs**

- Placement locations
- Background may be fluorescent yellow or fluorescent yellow-green
- Supports for in-street pedestrian crossing signs must be designed to bend over and bounce back when struck

**Speed Limit Reductions**

Reduced Speed Limit Ahead (W3-5) sign recommended for reductions greater than 10 mph

**Symbolic Do Not Pass Sign**

*NOT ADOPTED*

“Excluded” and “prohibited” changed to “NO”

**Barricades and Gates**

- Barricades Standards and Guidance relocated from Part 3
- Colors of barricades for non-TTC use shall be retroreflective white and red
- New section on Gates for all traffic uses
- Red/white stripes on gates shall be vertical rather than diagonal
Guidelines for Advance Placement of Warning Signs (Table 2C-4)

- Change to 20/40 visual acuity
- Assumption of legibility distance of 180 feet for Condition A (speed reduction and lane change)
- Assumption of minimum legend size of 6” lettering; if less, add 100 feet
- Assumption of legibility distance of 250 feet for Condition B (stop and deceleration)

Application of Horizontal Alignment Signs Based upon Curve Differential Speed

New Criteria for the Determination of Advisory Speeds

Support: Among the established engineering practices that are appropriate for the determination of the recommended advisory speed for a horizontal curve are the following:

- An accelerometer that provides a direct determination of side friction factors
- A design speed equation
- A traditional ball-bank indicator using the following criteria:
  - 16 degrees of ball-bank for speeds 20 mph or less
  - 14 degrees of ball-bank for speeds of 25 to 30 mph
  - 12 degrees of ball-bank for speeds of 35 mph and higher

New Variations of Combination Horizontal Alignment-Intersection Warning Signs
Chevron signs may be mounted at 4-foot height

<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 ft</td>
<td>40 feet</td>
</tr>
<tr>
<td>20 to 30 mph</td>
<td>200 to 400 ft</td>
<td>60 feet</td>
</tr>
<tr>
<td>35 to 45 mph</td>
<td>401 to 700 ft</td>
<td>120 feet</td>
</tr>
<tr>
<td>50 to 60 mph</td>
<td>701 to 1,250 ft</td>
<td>160 feet</td>
</tr>
<tr>
<td>More than 60 mph</td>
<td>More than 1,250 ft</td>
<td>200 feet</td>
</tr>
</tbody>
</table>
New Symbol Signs to Warn of Possible Presence of Large Animals

Plaques for use when STOP signs control all but one approach to the intersection

Share the Road plaque cannot be used alone; can ONLY be used to supplement another sign

Object Markers have been Relocated from Part 3 to Chapter 2C

Option to Use All Upper-Case Letters for Place Names and Street Names is Deleted

Guide signs should have no more than 3 lines of destination info
Provisions for Use of Pictographs on Guide Signs

Exceeds maximum size, not official seal

• Only Alternatives to the Green Background with White Text for Street Name Signs are:
  - Blue Background with White Text
  - Brown Background with White Text
  - White Background with Black Text

New Table for Letter Heights on Street Name Signs

Recommended Order of Two Street Names on an Advance Street Name Sign

New Provisions for the Design and Use of Community Wayfinding Guide Signs

Optional Use of RPMs Around Noses of Raised Medians, Curbs, or Islands
Internally Illuminated RPMs Shall be Steadily Illuminated (not flashed)

If flashing, they are in-roadway lights and shall meet Chapter 4N requirements and limitations on use.

Stop Lines and Yield Lines

- Stop lines shall not be used where drivers are required by law to yield rather than come to a full stop.
- Stop lines and yield lines may be “staggered” on a lane-by-lane basis.

Speed Hump Markings

If speed hump markings or advance speed hump markings are used, they shall be the markings shown in the MUTCD.

Delineator Application

Delineators should be used with guardrails and other barriers.

Delineators on Left-Hand Side of a Two-Way Roadway Shall be White

Shall match color of edge line.

Colored Pavements

Non-retroreflective: for aesthetics only, not to communicate a message = not a TCD.

Colored pavement or patterns should not degrade the contrast of white crosswalk lines.

TCD = Retroreflective or intended to communicate a regulatory, warning, or guidance message and shall comply with color code and other provisions for markings.
Channelizing Devices Used for Emphasis of Pavement Marking Patterns

Outside of TTC zones, when channelizing devices separate opposing traffic flows, retroreflective bands shall be yellow.

Pedestrian Islands and Medians

Reference to ADAAG regarding detectable warning surfaces to mark the boundary between pedestrian and vehicular areas.

Pavement Markings Used with Longitudinal and Transverse Rumble Strips

An edge line shall not be used in addition to a rumble stripe that is located along a shoulder.

Rumble Stripes

Part 5 is Not Applicable on Neighborhood Residential Streets

Part 5 applies only outside of built-up areas of cities, towns, and communities.

Typical Sizes for Signs and Plaques on Low-Volume Roads are the Same Sizes as for Conventional Roads
For consistency with Part 3, center lines may be placed on low-volume roads with or without edge lines.

Guidance on Lengths of Short Tapers and Downstream Tapers

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merging</td>
<td>At least L</td>
</tr>
<tr>
<td>Shifting</td>
<td>At least 0.5L</td>
</tr>
<tr>
<td>Shoulder</td>
<td>At least 0.33L</td>
</tr>
<tr>
<td>1 Lane-2 Way</td>
<td>50-100 feet</td>
</tr>
<tr>
<td>Downstream</td>
<td>50-100 feet (per lane)</td>
</tr>
</tbody>
</table>

High-Visibility Safety Apparel
- Required for all workers within the public right of way
- Applies to all roads, not just those on the Federal-aid system
- Option for law enforcement and first responders to use new ANSI “public safety vests”
- Firefighters and law enforcement are exempted from the requirement under certain conditions
- December 31, 2011 compliance date

Flaggers shall use a paddle or flag, not just hand signals.

Clarified OPTION for self-regulating traffic movement through a one-lane, two-way constriction
- If work space is short (adequate sight distance)
- If on a low-volume street

Two flaggers should be used for a one-lane, two-way constriction unless TTC zone is short enough for the flagger to see from one end to the other.
TTC plan should be developed for planned special events that will impact traffic

Bike Race

Parade

FYG Color Required for ALL School Warning Signs

Operating Procedures for Adult Crossing Guards

• Shall not direct traffic in the usual law enforcement regulatory sense
• Shall pick opportune times to create a sufficient gap in traffic flow
• Shall stand in roadway
• Shall use a STOP paddle
• Shall wear Class 2 high-visibility clothing (compliance by December 31, 2011)

YIELD or STOP Signs Required at Passive Highway-Rail Grade Crossings

(December 31, 2019 compliance date)

Sign Retroreflectivity MUTCD Requirements

• Establish/implement assessment management method by January 12, 2012
• Replace ground-mount signs (except street name) identified in the assessment by January 22, 2015
• Replace street name and overhead signs identified in the assessment by January 22, 2018
Retroreflectivity degrades over time.

Signs provide critical information to drivers.

**But**

So when do we replace signs?

<table>
<thead>
<tr>
<th>Type</th>
<th>Red</th>
<th>Type II</th>
<th>Red</th>
<th>Type III</th>
<th>Red</th>
<th>Type VII</th>
<th>Minimum Maintained</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>70</td>
<td>140</td>
<td>250</td>
<td>760</td>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New MUTCD Language

...one or more of the following assessment or management methods should be used…”

Assessment Methods
- Visual Nighttime Inspection
  - Calibration Signs
  - Comparison Panels
  - Consistent Parameters
- Measured Sign Retro

Management Methods
- Expected Sign Life
- Blanket Replacement
- Control Signs

Select a method that optimizes the use of your agency’s available resources.

Sign Retroreflectivity Guidebook

http://safety.fhwa.dot.gov/roadway_dept/night_visib/retrotoolkit/

Types that Meet Minimums

http://safety.fhwa.dot.gov/roadway_dept/night_visib/

<table>
<thead>
<tr>
<th>Common Sheeting Name</th>
<th>Engineer Grade</th>
<th>Super Engineer Grade</th>
<th>High Intensity Beaded</th>
<th>Prismatic (many common names)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASTM Sheeting Type</strong></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>II</td>
</tr>
<tr>
<td>Engineer Grade</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Super Engineer Grade</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>High Intensity Beaded</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Prismatic (many common names)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Types meet minimums:
- III, IV, VII, VIII, IX, X
- Many common names

Questions?

Contact Tori Brinkly, Highway Safety Engineer
for any traffic/safety questions
victoria.brinkly@dot.gov
360-619-7885