

**Manual on Uniform Traffic Control Devices  
(MUTCD)**

**2010 Update**

**Loss Control Advisory Services**

**Loss Control Advisory Services**

## **Agenda**

- Provide an overview of the MUTCD
  - Liberty Mutual's participation on the NUTCD Temporary Traffic Control Technical Committee
- Present Revisions to Part 6 – Temporary Traffic Control (TTC) 2009 edition
- Update on current TTC Task Force
  - Pedestrian Accessibility Detectable Edging and Roundabouts
- Review of 23 CFR Part 630 – Subpart K Workzone Safety Management and new Barrier Technology



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## Session Objectives

Upon completing this session, you will be able to:

- Describe the role of the National Committee on Uniform Traffic Control Devices (NCUTCD)
- List Revisions to Part 6 – Temporary Traffic Control
- Apply appropriate Standards and Guidance
- Explain 23 CFR Part 630 – Subpart K Workzone Safety Management and new Barrier Technology



## What Does NCUTCD Do?

- Assists in the development of standards for traffic control devices and practices
  - Regulate, warn and guide traffic on streets and highways
- Recommends proposed revisions and interpretations to the Manual on Uniform Traffic Control Devices (MUTCD) to the Federal Highway Administration (FHWA) and other appropriate agencies
- Develops public and professional awareness



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## 8 Technical Committees


- Bicycle
- R/W Signs
- GMI Signs
- Markings
- Signals
- Temporary Traffic Control
- Railroad and Light Rail Transit Highway Grade Crossing
- Research



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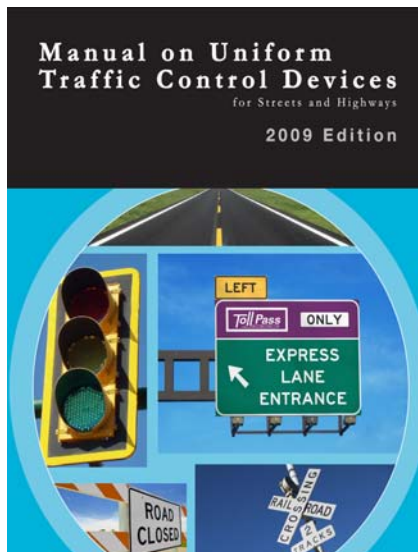
## Liberty Mutual's Contribution

- Member of the TTC Technical Committee
- Represented in 3 task forces
  1. Roundabouts – 6-H
  2. Pedestrian and Worker Safety – 6-D
  3. Control of Traffic Through Traffic Incident Management Areas – 6-I



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## The Latest Version



## Defining “Statements”

- Standard - required, mandatory, or specifically prohibitive practice
  - “Shall”
- Guidance - recommended, but not mandatory, practice in typical situations
  - Deviations allowed when based on engineering judgment or engineering study
  - “Should”
- Option - practice that is permissive
  - Carries no requirement or recommendation
  - Sometimes contain allowable modifications
  - “May”
- Support – informational
  - No mandate, recommendation, authorization, prohibition, or enforceable condition



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## When Does MUTCD Apply?



Private roads that are "open to public travel"



## What's Not Subject to MUTCD?



- Parking areas and their driving aisles



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## Compliance Dates


- New installations, replacements, rebuilds – immediately
- New Table I-2 with specific compliance dates to retrofit or replace existing devices to meet 11 of the new Standards in the 2009 MUTCD

**Table I-2. Target Compliance Dates Established by FHWA (Sheet 2 of 3)**

2009 MUTCD Section Number(s)	2009 MUTCD Section Title	Specific Provision	Compliance Date
2C.50	Non-Vehicular Warning Signs	Elimination of crosswalk lines from crossing signs and use of diagonal downward pointing arrow (B16.79) supplemental plaque if at the crossing (2003 MUTCD Section 2C.41)	January 17, 2011 (a)(b)
2C.61	PHOTO ENFORCED Plaque (W15-10P)	New plaque (2003 MUTCD Section 2C.53) (*)	December 22, 2013 (b)
2C.63	Object Marker Design and Placement Height	Width of stripes on Type 3 striped marker (2003 MUTCD Section 3C.01)	December 22, 2013 (b)
2D.43	Street Name Signs (D3-1 or D3-1a)	6-inch letter height for lettering on post-mounted Street Name signs (except on multi-lane streets with speed limits greater than 40 mph) (2003 MUTCD Section 2D.38)	January 9, 2012 (a)
2D.43	Street Name Signs (D3-1 or D3-1a)	8-inch letter height on post-mounted signs on multi-lane streets with speed limits greater than 40 mph, and 12-inch letter height on overhead signs (2003 MUTCD Section 2D.38)	December 22, 2013 (b)
2D.44	Advance Street Name Signs (D3-2)	Requirements of new Section 2D.39 in the 2003 MUTCD	December 22, 2013 (b)
2D.45	Signing on Conventional Roads on Approaches to Interchanges	New requirement in the 2009 MUTCD for multi-lane approaches to interchanges to have guide signs to identify which direction of turn is to be made for access to each direction of the freeway or expressway	December 31, 2019

Previously-established dates


New compliance date in 2009 edition



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## Development of the 2009 MUTCD

- Last major revision 2003
  - 5 Year Cycle
- NPA published in the Federal Register on January 2, 2008
- Deadline for comments to docket was July 31, 2008
- Received 1,840 individual letters with over 15,000 comments
- Final Rule Published in the Federal Register on December 16, 2009.



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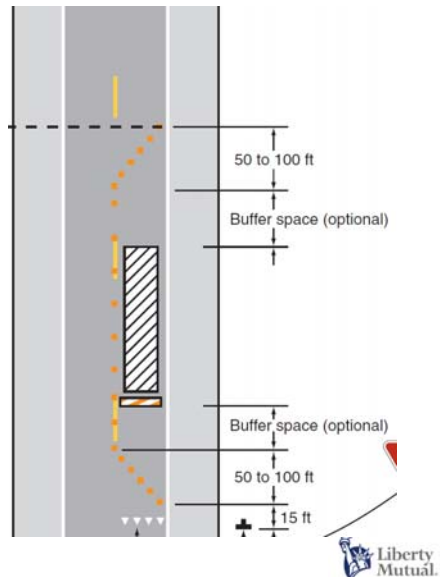
## Revisions to Part 6 – Temporary Traffic Control

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### Guidance on Lengths of Tapers

- Short tapers
  - 50' minimum
- Downstream tapers
  - 100'



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### Addition to Table 6C-3

- Minimum length for one-lane, two-way traffic taper

Type of Taper	Taper Length
Merging Taper	at least L
Shifting Taper	at least 0.5 L
Shoulder Taper	at least 0.33 L
One-Lane, Two-Way Traffic Taper	50 feet minimum 100 feet maximum
Downstream Taper	100 feet per lane

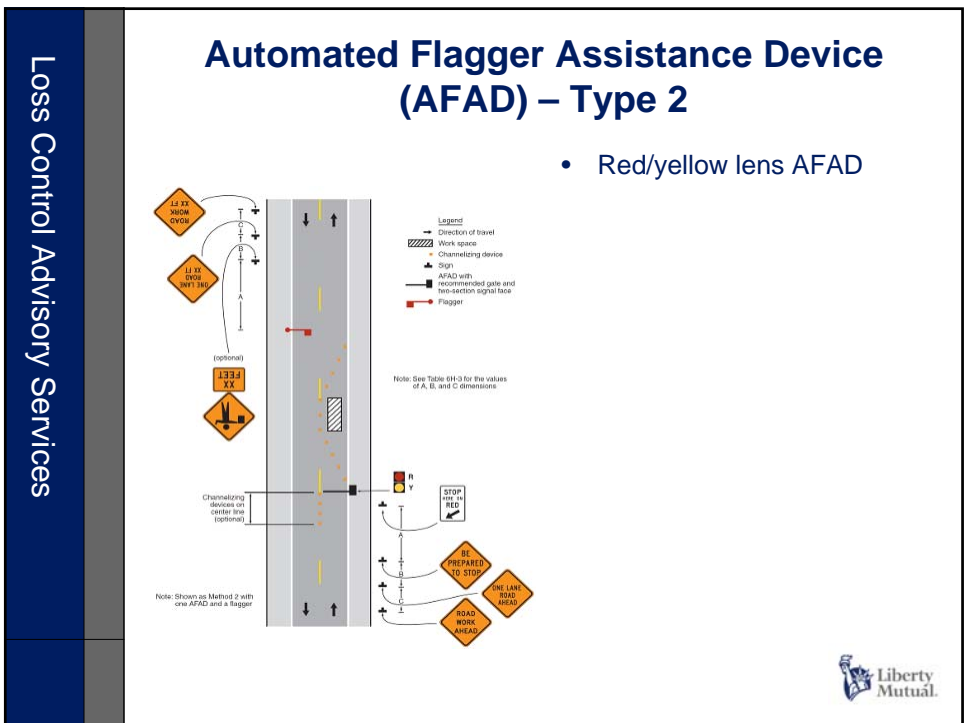
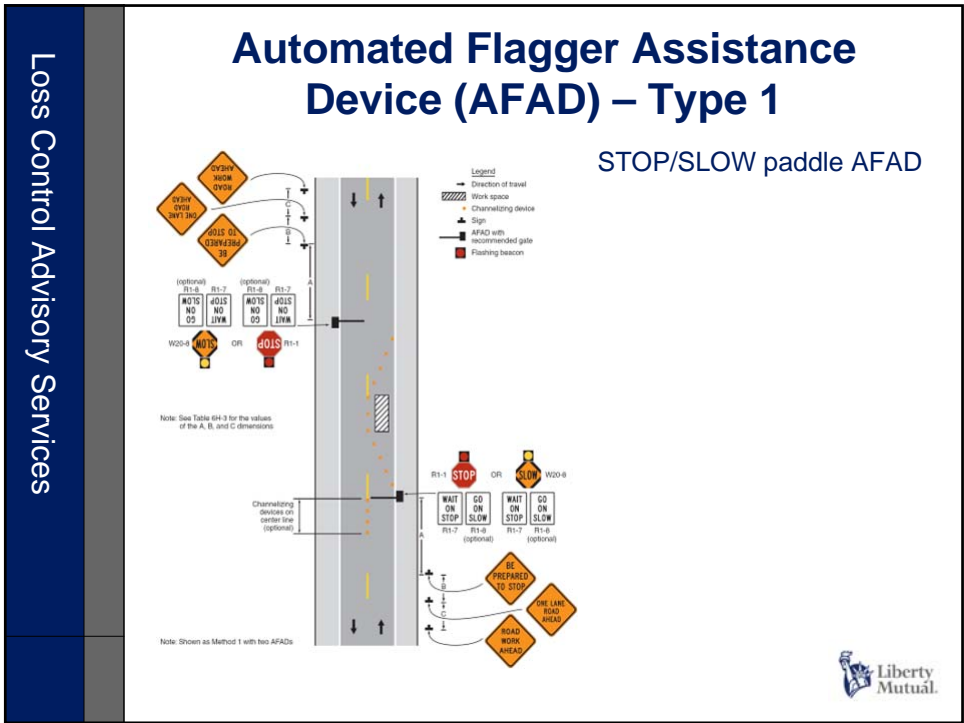


### High-Visibility Safety Apparel

- 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 exempt under certain conditions
- December 31, 2011 compliance date

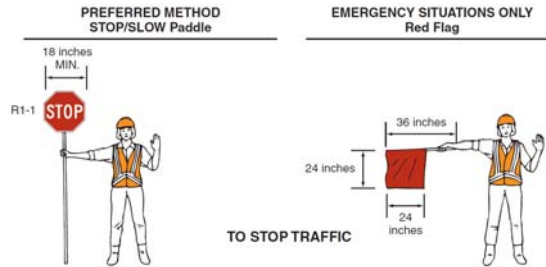


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## It's More than Just Hand Signals



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



## Support - Optimal Paddle Placement

- Paddles should be placed on a rigid staff, high enough to be seen by approaching or stopped traffic



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### Clarified Option – One-lane, 2-way Constriction

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

- For self-regulating traffic movement *IF*:
  - Work space is short (adequate sight distance)
  - On a low-volume street

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### Recommendation – One-lane, 2-way Constriction

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

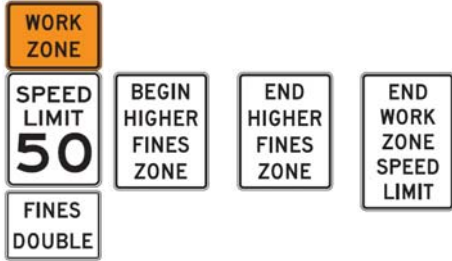
- Use 2 flaggers
  - Unless is short enough for the flagger to see from one end to the other of TTC zone

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### New Optional and Recommended Signs and Plaques




- Accompany Speed Limit signs in TTC zones




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### Center Lane Closed Ahead symbol sign has been removed from the MUTCD



W9-3

W9-3a



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## New Sign to Warn of Change in Traffic Pattern



## New Symbol Low Shoulder Sign and Supplemental Plaque



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## New Alternating Diamond Display

- Indicates caution on an arrow board



## Temporary Lane Separators and Temporary Raised Islands



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## Temporary Markings

- Delineate path through the TTC zone:
  - When permanent markings are either removed or obliterated during the work activities
- Should not be left in place longer than 14 days
- Some allowable exceptions to normal longitudinal markings requirements



## Temporary RPMs in TTC zones


- More provisions on color, patterns, and spacing, consistent with Part 3
  - Colors and patterns shall simulate the markings for which they substitute
  - May be used to substitute for solid lines
- Option to use a less expensive pattern of temporary RPMs to substitute for broken line segments
  - Should not be used more than 14 days



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### Deleted from the MUTCD


- Steady burn electric lamps
- Vehicle arresting systems



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### Retained in the MUTCD

- Floodlights
- Crash cushions
- Screens

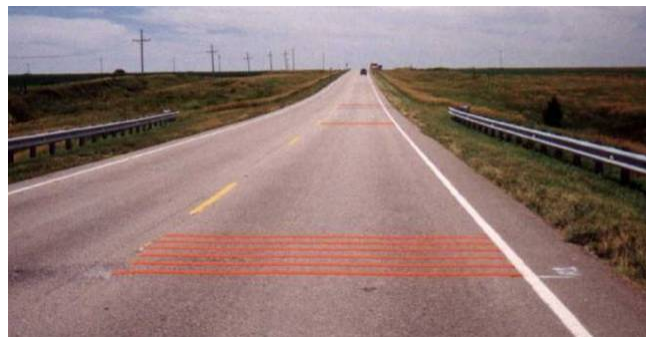


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## Preemption of Temporary Signals in TTC Zones



## Transverse Rumble Strips in TTC Zones



- Black and orange are acceptable colors



## TTC plan for Special Events

- TTC plan should be developed for planned special events that will impact traffic



**Bike race**



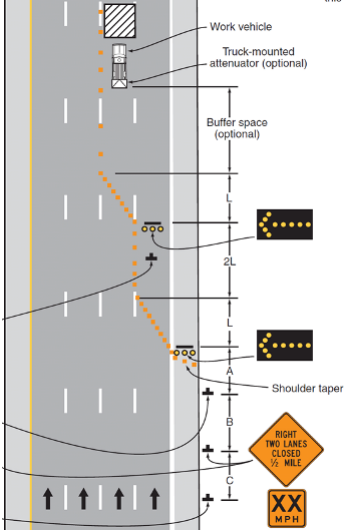
## Typical Application (TA) Drawings

- Except for the TA “Notes,” information in the TA drawings can generally be regarded as Guidance
- TA 4 – stationary signs may be omitted for mobile work if the work vehicle displays high-intensity strobe lights (short term closures)
- TA 7 – ROAD CLOSED sign eliminated
- TA 16 – lanes should be at least 10 feet wide (center line surveying)



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### TAs with Freeway Lane Closures




- TAs 37, 38, 39, 42, and 44
- Arrow board shall be used for all freeway lane closures
- Separate arrow board shall be used for each closed lane for multi-lane closures

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### Provisions for Traffic Incident Management

- Reference to the Incident Command System (ICS)
- All on-scene responders and news media personnel should wear high-visibility apparel
- Light sticks may be used in lieu of flares



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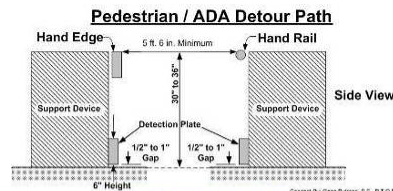
## Temporary Traffic Control – 2010

Two items currently under review

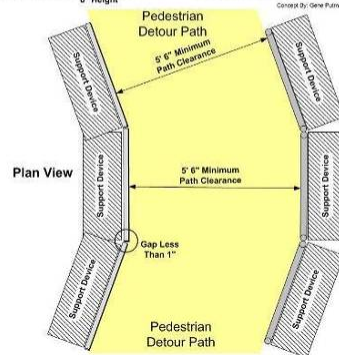
- Pedestrian Accessibility Considerations
  - Detectable edging and TA guidance
- Standards for Construction in Roundabouts



## Pedestrian Accessibility Considerations



- No agreement on width dimensions
- 1/2" drainage spec

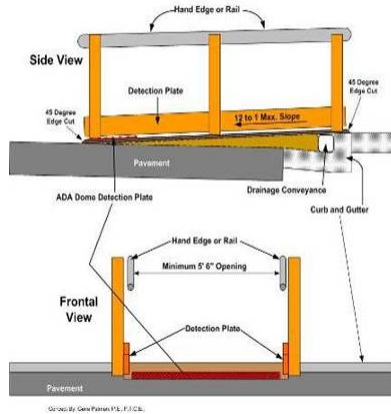


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## Pedestrian Accessibility Considerations

### Pedestrian / ADA Detour Path Temporary Ramp into the Roadway

- Cross sectional vs. front view term



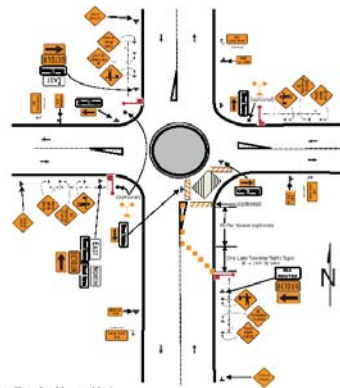
## Work in the Vicinity of a Modern Roundabout

### Single lane roundabout

- Detour traffic away from the roundabout until the work is completed

### Multi-lane roundabout

- Use the lane being worked on and allow traffic to proceed via open lane



**Lane Closure for a 2-lane roundabout**  
The High Level Warning Device or two in three cases are recommended to identify the Plaque station for the approach without a sign.  
Reverse Traffic flow is required for:  
• South-bound traffic, accessing all lanes.  
• East-bound traffic, accessing North-bound and East-bound lanes.  
• North-bound traffic, accessing the East-bound lane.




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## Proposed Section Guidance / Standard – Example Only

### Section 6G.21 Roundabouts

- **Guidance:**
  - The overall concept for temporary traffic control at roundabouts is similar to general intersection temporary traffic control. Typical applications for roundabouts are classified according to the location of the work space. The three general classifications are approach lane, departure lane, and in-the-roundabout.
- **Standard:**
  - The spacing of channelizing devices on the circulatory section of a roundabout shall not exceed a distance in feet equal to 1.0 times the speed limit in mph when used for tangent channelization.
  - Advance signs shall be used on all approaches to warn motorists that there is work at or near the roundabout.
  - On multiple lane roundabouts where the work is confined to one lane, all entrances and exits shall be reduced by one appropriate lane.
  - Vehicle turning paths need to be carefully considered to ensure the rear wheels of long vehicles do not hit the temporary traffic control devices within the roundabout.




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## Proposed Section Guidance / Option - Example Only

### Section 6G.21 Roundabouts

- **Guidance:**
  - The entire roundabout should be closed whenever work occurs on or adjacent to a roundabout if the required safety zones cannot be met. The motor vehicle traffic on approaches to a roundabout that is closed for short-term stationary work or longer should be appropriately detoured to a different roadway or route.
  - The number of lanes in the circulatory section of a roundabout should not be varied via temporary traffic control devices because of the limited sight distance and space available for advance signing and channelizing devices.
  - Pedestrian movements should be separated from both work site activity and motor vehicle traffic. Pedestrians should be appropriately directed with advance signing.
- **Option:**
  - Depending on road user conditions, a flagger(s), TMA's and/or a uniformed law enforcement officer(s) should be used to control road users.



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## 23 CFR Part 630 – Subpart K

### Strategies to reduce Work Space Intrusions

- Positive protection devices
- Exposure control measures
- Other traffic control measures
- Uniformed law enforcement officers



## Positive Protection Devices

- Devices that contain and/or redirect vehicles – per NCHRP 350
  - Use based on engineering study – project or agency level factors
  - Shall be considered in WZs that place workers at increased risk
- AND
- Where positive protection devices offer the highest potential for increased safety for workers and road users

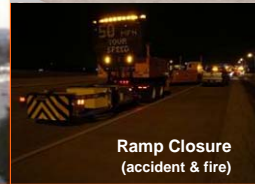


## Subpart K – Highest Payoff Potential

- No escape for workers – tunnels, bridges, etc.
- Long duration WZs, e.g. 2+ weeks
- High traffic speeds (e.g.45 mph) combined with high traffic volumes
- Workers close to open traffic lanes
- Overnight roadside hazards – drop-offs, open bridge decks, etc.



## Protection Device Examples



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## Portable Barrier for Work Zones and Controlled Access Points



## References / Resources

- Barrier Systems, Inc.
- Mobile Barriers, Inc.
- TRB Joint Subcommittee on Positive Protection in Work Zones
- James Bryden, Highway Safety Engineer
- Gene Putnam, PE P.T.O.E
- US DOT FHWA
- [2009 MUTCD Manual \(www.mutcd.fhwa.dot.gov\)](http://www.mutcd.fhwa.dot.gov)



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## Summary

- 2009 Edition is the most current edition of the MUTCD with an effective date of 01/15/2010
- Liberty Mutual will continue to weigh risks and highway safety considerations in rules making decisions
- Comments, concerns and suggestions on future rules making can be made to via the federal register and directly to:  
[jeffrey.labarge@libertymutual.com](mailto:jeffrey.labarge@libertymutual.com)



*We want your feedback!!*

*Please complete our exit poll before leaving this session.*

***Thank you for your participation!***

*For additional Loss Control assistance,  
contact Liberty Mutual's*

**Loss Control Consulting Center**

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**1-866-757-7324**

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