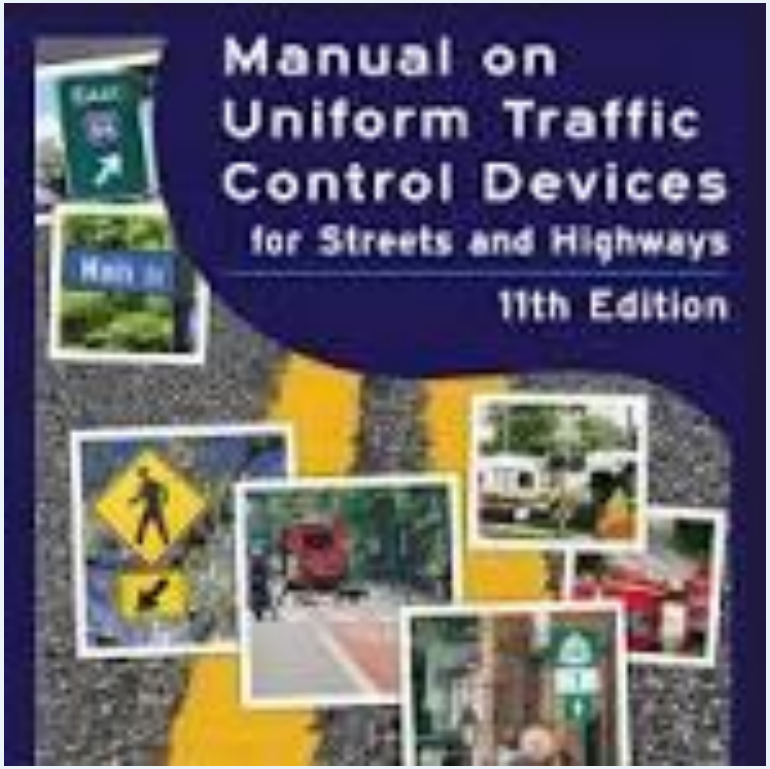
MUTCD 11th Edition

What Changed and What Practitioners Need to Know
Tribal Transportation Edition

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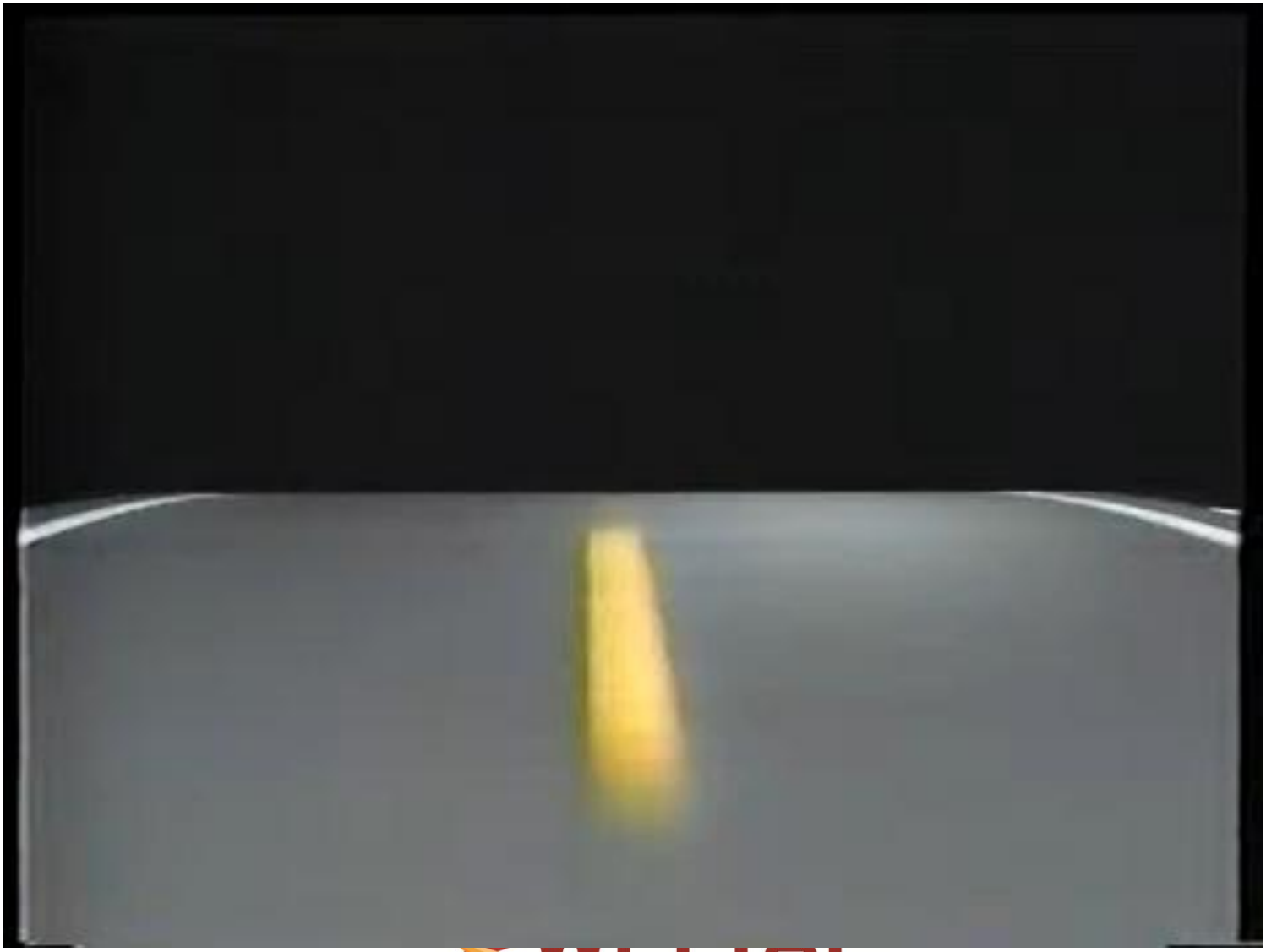
Learning Objectives

- Understand why the MUTCD exists
- Recognize major changes in the 11th Edition
- Understand the State Specific MUTCD
- Identify actions for Tribal transportation agencies



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MUTCD Circa 1995



https://youtu.be/P1I0ANI8cOQ?si=CEiHw6octaHUqk8E

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MUTCD Circa 1995



https://youtu.be/P1I0ANI8cOQ?si=CEiHw6octaHUqk8E

These Standards Apply To All Roads Open To The Public And Anyone Occupying Them

including private areas that are open to the public

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Why Traffic Control Matters

- Consistency reduces driver confusion
- Supports all road users
- Improves safety and mobility
- Provides nationally recognized standards

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What is the MUTCD?



- National standard for traffic control devices



- Applies to roads open to public travel



- Includes signs, signals, markings, work zones, school areas, rail crossings, and bicycle facilities

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Why Each State Has a MUTCD



- Combines Federal MUTCD with state specific statutes



- Includes state-specific guidance



- Simplifies implementation for practitioners

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Safe System & the MUTCD



- Safe Roads
- Safe Speeds
- Safe Road Users
- Safe Vehicles
- Post-Crash Care
- Traffic control devices support every Safe System element

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Tribal Transportation Perspective



• SUPPORTS TRIBAL TRANSPORTATION PROGRAM PROJECTS



• USEFUL FOR PLANNING, DESIGN, MAINTENANCE AND SAFETY



• PROMOTES CONSISTENCY ACROSS TRIBAL, COUNTY, STATE AND FEDERAL ROADWAYS

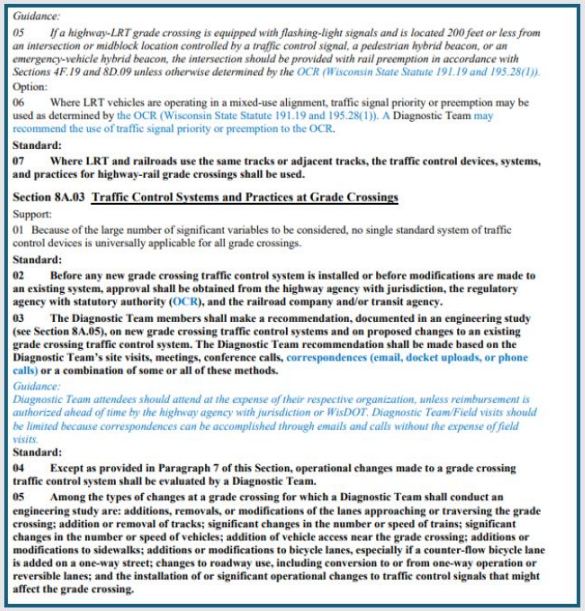
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MUTCD Definitions

- Standard = SHALL
- Guidance = SHOULD
- Option = MAY
- Support = Informational

- **Standard:** required, mandatory, or specifically prohibited practice; “shall”; **bold text**
- **Guidance:** recommended practice, deviations allowed; “should”; *italicized*
- **Option:** statement of practice with no requirement or recommendation; “may”
- **Support:** informational statement, no degree of mandate

WMUTCD-specific text is in blue (previously was red)



Guidance:

05 If a highway-LRT grade crossing is equipped with flashing-light signals and is located 200 feet or less from an intersection or midblock location controlled by a traffic control signal, a pedestrian hybrid beacon, or an emergency-vehicle hybrid beacon, the intersection should be provided with rail preemption in accordance with Sections 4F.19 and 8D.09 unless otherwise determined by the OCR (Wisconsin State Statute 191.19 and 195.28(1)).

Option:

06 Where LRT vehicles are operating in a mixed-use alignment, traffic signal priority or preemption may be used as determined by the OCR (Wisconsin State Statute 191.19 and 195.28(1)). A Diagnostic Team may recommend the use of traffic signal priority or preemption to the OCR.

Standard:

07 Where LRT and railroads use the same tracks or adjacent tracks, the traffic control devices, systems, and practices for highway-rail grade crossings shall be used.

Section 8A.03 Traffic Control Systems and Practices at Grade Crossings

Support:

01 Because of the large number of significant variables to be considered, no single standard system of traffic control devices is universally applicable for all grade crossings.

Standard:

02 Before any new grade crossing traffic control system is installed or before modifications are made to an existing system, approval shall be obtained from the highway agency with jurisdiction, the regulatory agency with statutory authority (OCR), and the railroad company and/or transit agency.

03 The Diagnostic Team members shall make a recommendation, documented in an engineering study (see Section 8A.05), on new grade crossing traffic control systems and on proposed changes to an existing grade crossing traffic control system. The Diagnostic Team recommendation shall be made based on the Diagnostic Team’s site visits, meetings, conference calls, correspondences (email, docket uploads, or phone calls) or a combination of some or all of these methods.

Guidance:

Diagnostic Team attendees should attend at the expense of their respective organization, unless reimbursement is authorized ahead of time by the highway agency with jurisdiction or WisDOT. Diagnostic Team/Field visits should be limited because correspondences can be accomplished through emails and calls without the expense of field visits.

Standard:

04 Except as provided in Paragraph 7 of this Section, operational changes made to a grade crossing traffic control system shall be evaluated by a Diagnostic Team.

05 Among the types of changes at a grade crossing for which a Diagnostic Team shall conduct an engineering study are: additions, removals, or modifications of the lanes approaching or traversing the grade crossing; addition or removal of tracks; significant changes in the number or speed of trains; significant changes in the number or speed of vehicles; addition of vehicle access near the grade crossing; additions or modifications to sidewalks; additions or modifications to bicycle lanes, especially if a counter-flow bicycle lane is added on a one-way street; changes to roadway use, including conversion to or from one-way operation or reversible lanes; and the installation of or significant operational changes to traffic control signals that might affect the grade crossing.

Engineering Judgment

Key Takeaway: Focus on why the change matters before discussing the technical requirements.



- 11th Edition emphasizes engineering judgment



- Engineering studies remain critical



- Context matters—not every roadway is identical

Engineering Judgment



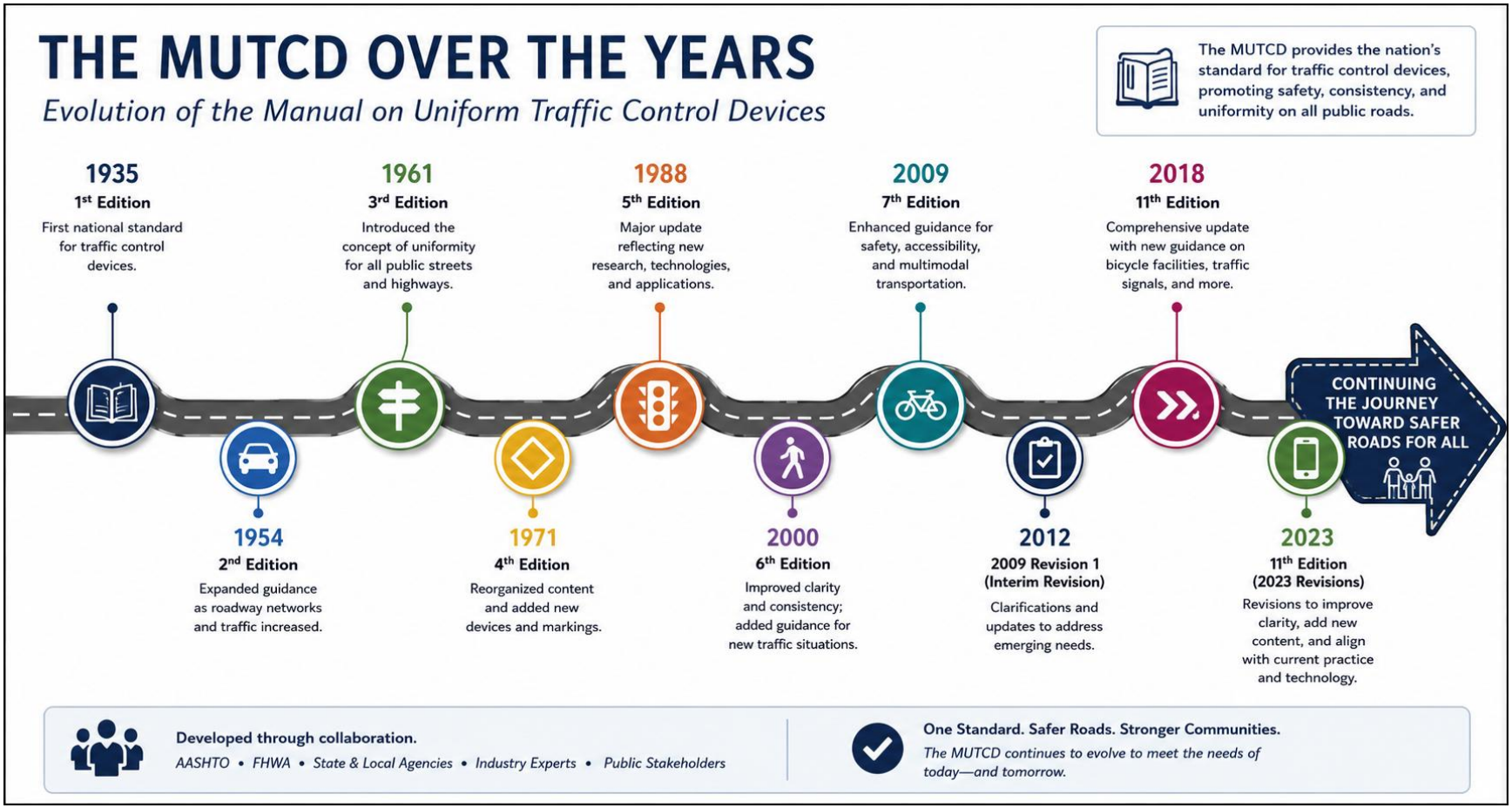
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Four Big Themes

- Protecting Vulnerable Road Users
- Accessibility
- Engineering Judgment
- Technology & Automated Vehicles

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Timeline



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Audience Discussion

- What MUTCD changes have you already noticed?
- What topics are most important to your community?

Roadmap

- Part 2 – Signs
- Part 3 – Pavement Markings
- Part 4 – Signals
- Part 5 – Automated Vehicles
- Part 6 – Temporary Traffic Control
- Part 8 – Railroad Crossings
- Part 9 – Bicycle Facilities

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- The biggest changes are not new signs—they represent a shift toward a safer, more multimodal, and more flexible transportation system.

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Part 2 Overview

Signs: What's New in the 11th Edition

- Standardization
- Consistency
- Visibility
- Engineering judgment

Signs

Signs used in work zone traffic control are classified as regulatory, guide, or warning. Regulatory signs impose legal restrictions and shall only be used with permission from the authority with jurisdiction over the roadway. Guide signs commonly show destinations, directions, and distances. Warning signs give notice of conditions along the roadway.























Temporary Warning Signs – With few exceptions, temporary warning signs for construction, maintenance, and utility work zones shall be diamond shaped, having a black symbol or message on an orange background. As a general rule, these signs should be located on the right-hand side of the roadway. Normally, the first advance warning sign used is ROAD WORK AHEAD or UTILITY WORK AHEAD. The END ROAD WORK or END UTILITY WORK signs should be used on long-term stationary work lasting more than seven (7) days. The END ROAD WORK sign is necessary to define the work zone for enforcement purposes (i.e., double fines, cell phone).

Size – On State-owned numbered roads and connecting highways, advance warning signs shall be 48" by 48". On other roadways where speed limits are 45 mph or greater, they should be 48" by 48". Where speed limits are 40 mph or less, 36" by 36" signs may be used.



AP

ance Program

Biggest Changes in Part 2

Key updates

- Standard MUTCD symbols required
- Agency-created symbols eliminated
- Clarified sign placement guidance
- Compliance phase-in periods

Standard Symbol Requirements

Use standard symbols whenever available

- No custom symbols if a standard sign exists
- Improves driver recognition
- Supports automated vehicle readability

•2A.04 **Design of Signs**

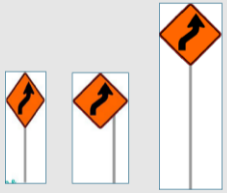
- If a standard sign exists, must use that sign
- Sign symbols must be identical to those in SHS
  - no more agency-specific symbols



- Word legend signs can't substitute for standard symbol signs
  - unless specifically allowed elsewhere in the MUTCD

•2A.05 **Shapes**

- **OK:**
  - Rotate
  - Offset
  - Raise to clear



- **Not OK:**
  - Cutting corners or changing shape



Sign Placement

- Proper placement improves effectiveness

- Mounting height
- Lateral offset
- Visibility
- Sight distance

Retroreflectivity

Signs must remain visible at night

- Maintain minimum retroreflectivity
- Support inspection and replacement programs
- Incorporate into asset management

School Areas

Consistent school traffic control

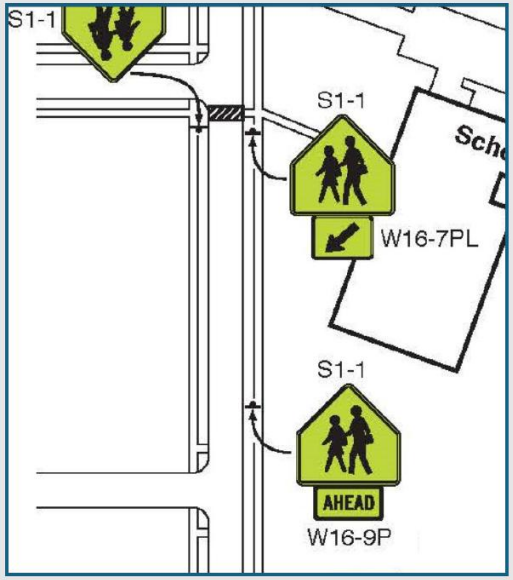
- School warning signs
- Crosswalk visibility
- School speed zones
- Pedestrian emphasis

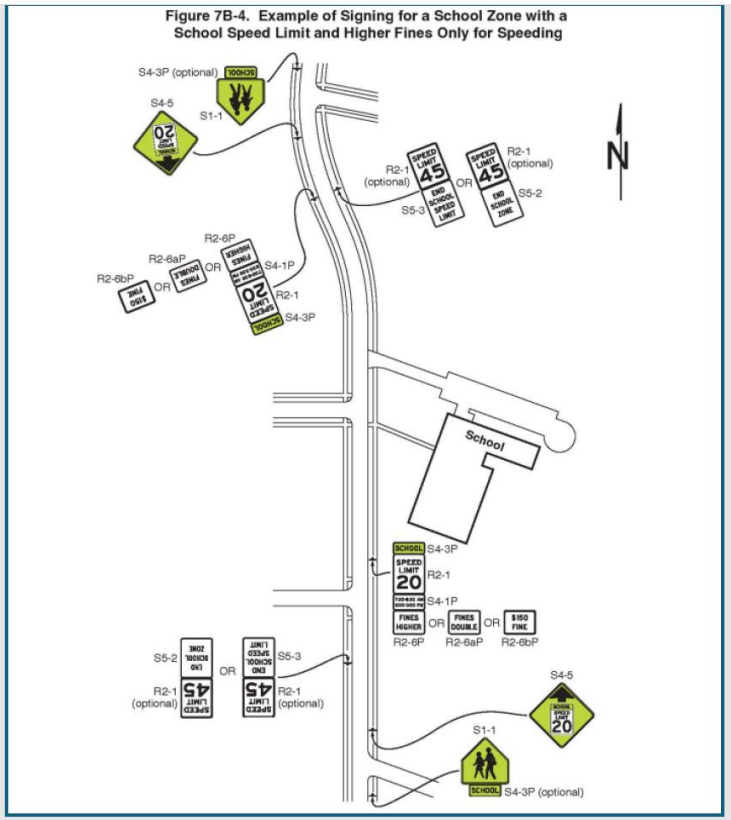
Chapter 7B – Signs

• 7B.05 **School Speed Limit Signs and Plaques**



Previous Configuration





Wisconsin Implementation

WMUTCD + TEOpS

- Federal requirements
- Wisconsin-specific guidance
- Local agency implementation

- 7B.05 **School Speed Limit Signs and Plaques**
- A School Speed Limit assembly shall be used to indicate the speed limit where a reduced school speed limit zone has been established based upon an engineering study or where a reduced school speed limit is specified for such areas by statute.



Presenter Tip: Explain why the change improves consistency, safety, or usability.

Part 3 Overview

Pavement Markings

- Communicate lane use
- Guide drivers day and night
- Support multimodal travel

Presenter Tip: Explain why the change improves consistency, safety, or usability.

Major pavement marking changes

- **Normal Line –4 to 6 inches Wide**
- **Double Line-at least twice the width of a normal line**
- 6” markings are still being used on State Highways
- Locals can use 4-6” markings

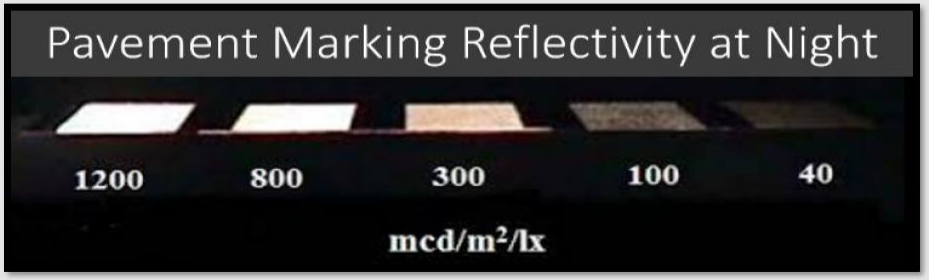
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Retroreflectivity

- Minimum retroreflectivity standards established
- Higher-speed facilities require higher values

Pavement Marking Retroreflectivity Chapter 3A.05

Speed	Retros
>35 mph	50 mcd/m2/lx
70+ mph	100 mcd/m2/lx



Compliance Dates

Retros

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

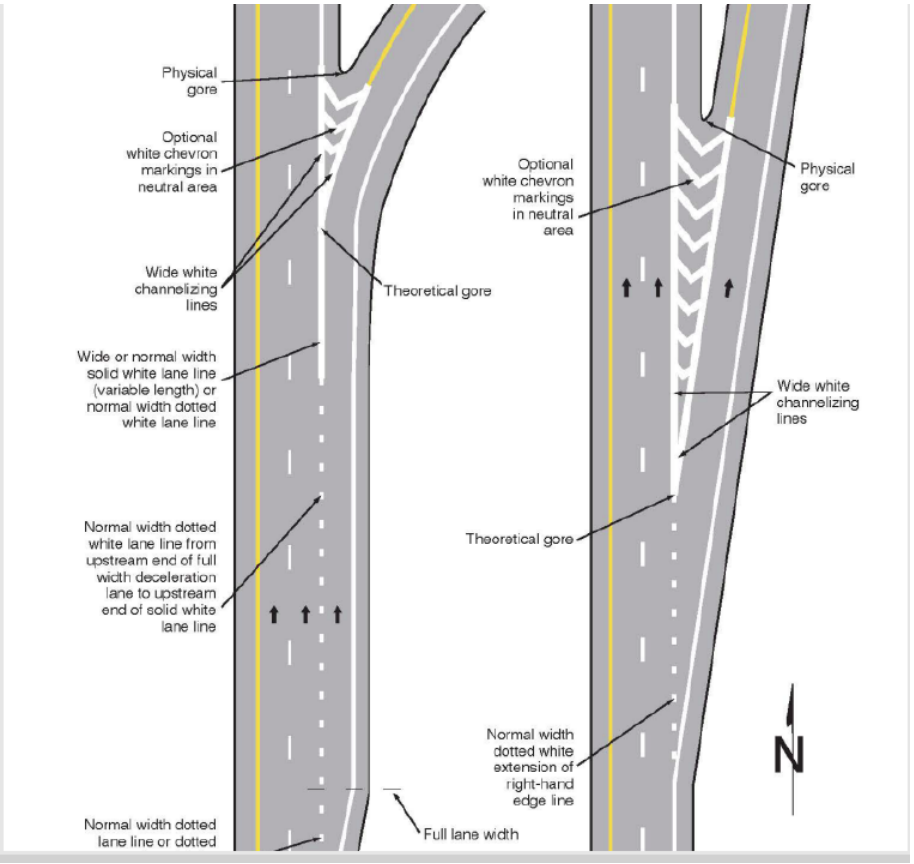
TEOpS Policy 3-10-2

https://wisconsindot.gov/dtsdManuals/traffic-ops/manuals-and-standards/teops/03-10.pdf

Dotted White Lines

Lane continuity

- Required at exit ramps
- Clarifies lane transitions



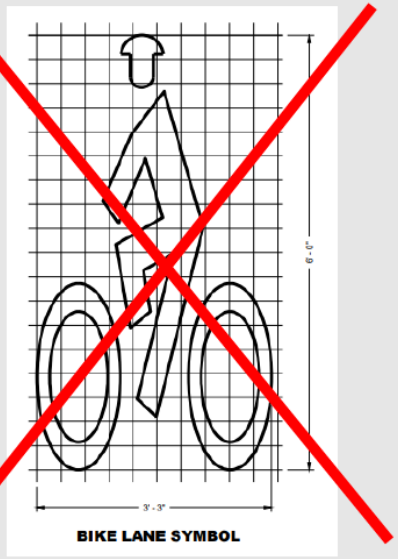
Presenter Tip: Explain why the change improves consistency, safety, or usability.

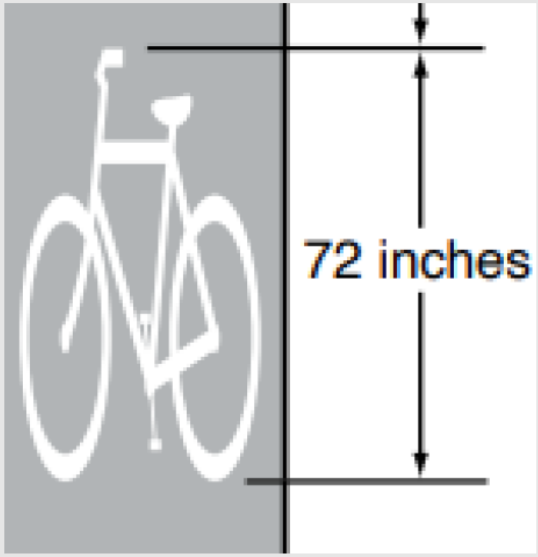
Bicycle Symbol Updates

Updated bicycle markings

- Legacy person-on-bike symbol removed
- Use current MUTCD bicycle symbol

No longer can use Person on Bike

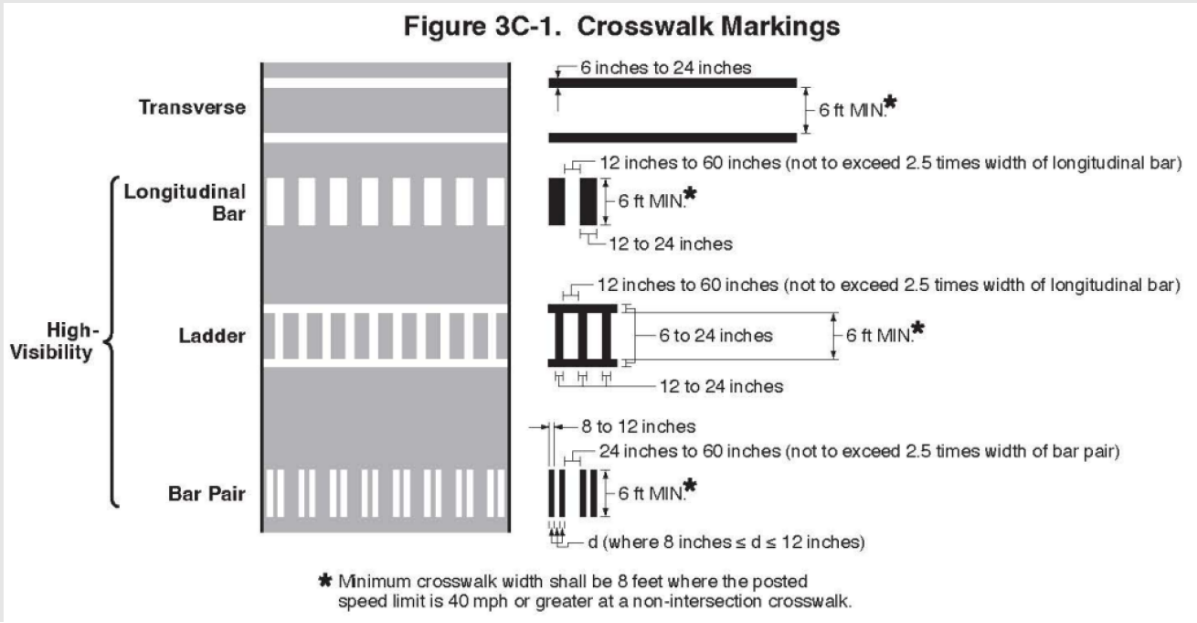




Crosswalk Markings

Visibility matters

- Updated marking guidance
- Consider context and user needs



State Highways

- 6” transverse lines
- 24” line, 24” gap block

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Agency Action Items

Preparing for implementation

- Inventory signs
- Review pavement marking standards
- Update maintenance plans
- Train staff

Part 4 Overview

Highway Traffic Signals

- Major philosophy changes
- Pedestrian accommodations
- Accessibility improvements
- Engineering judgment emphasized

Signal Warrants

- 2009: Warrants SHALL be met
- 11th Edition: Warrants SHOULD be met
- Engineering judgment plays a larger role

Was Warrants SHALL be met, now warrants SHOULD be met

- Puts more emphasis on using engineering judgement to determine when a signal should be considered.
- Note: TEOpS Chapter 4 is being updated to keep warrants shall be met for signals on the state trunk highway system.

Engineering Judgment

Looking beyond the numbers

- Traffic volumes
- Crash history
- Pedestrian activity
- Schools and land use
- Future growth

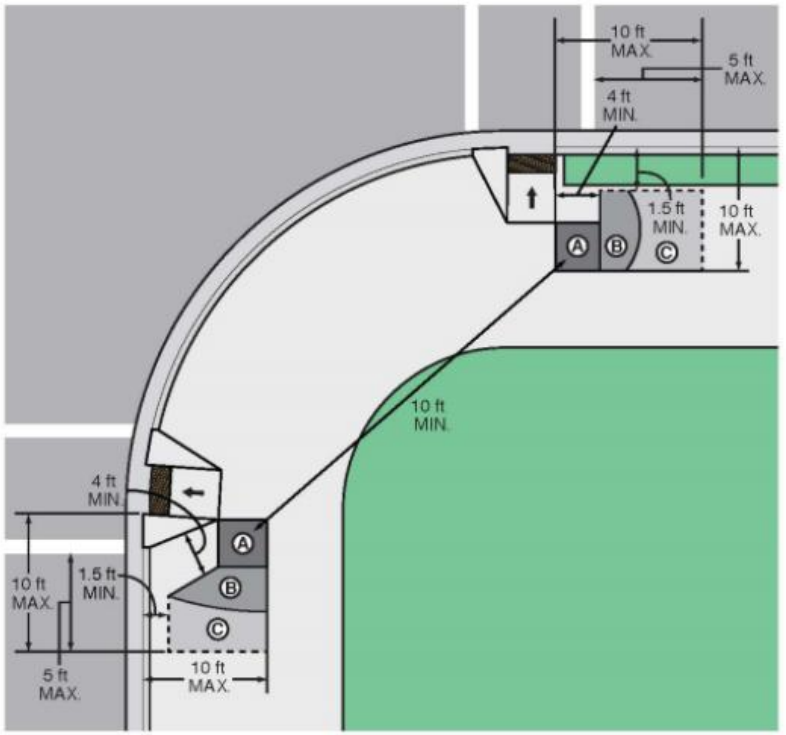
Presenter Tip: Explain what changed, why it changed, and what agencies should do differently.

Pedestrian Accessibility

Designing for all users

- Improved pushbutton placement
- Accessible Pedestrian Signals (APS)
- ADA considerations
- Crossing usability

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

Pedestrian Hybrid Beacons

Expanded applications

- May now be used at intersections
- Previously limited to mid-block crossings
- Minor street stop control required where applicable



Why These Changes Matter

Safe System Approach

- Reduce pedestrian crashes
- Improve accessibility
- Support context-sensitive design

Part 5 Overview

Traffic Control Devices for Automated Vehicles



- New chapter in the 11th Edition



Addresses sensors, lane lines, and readability



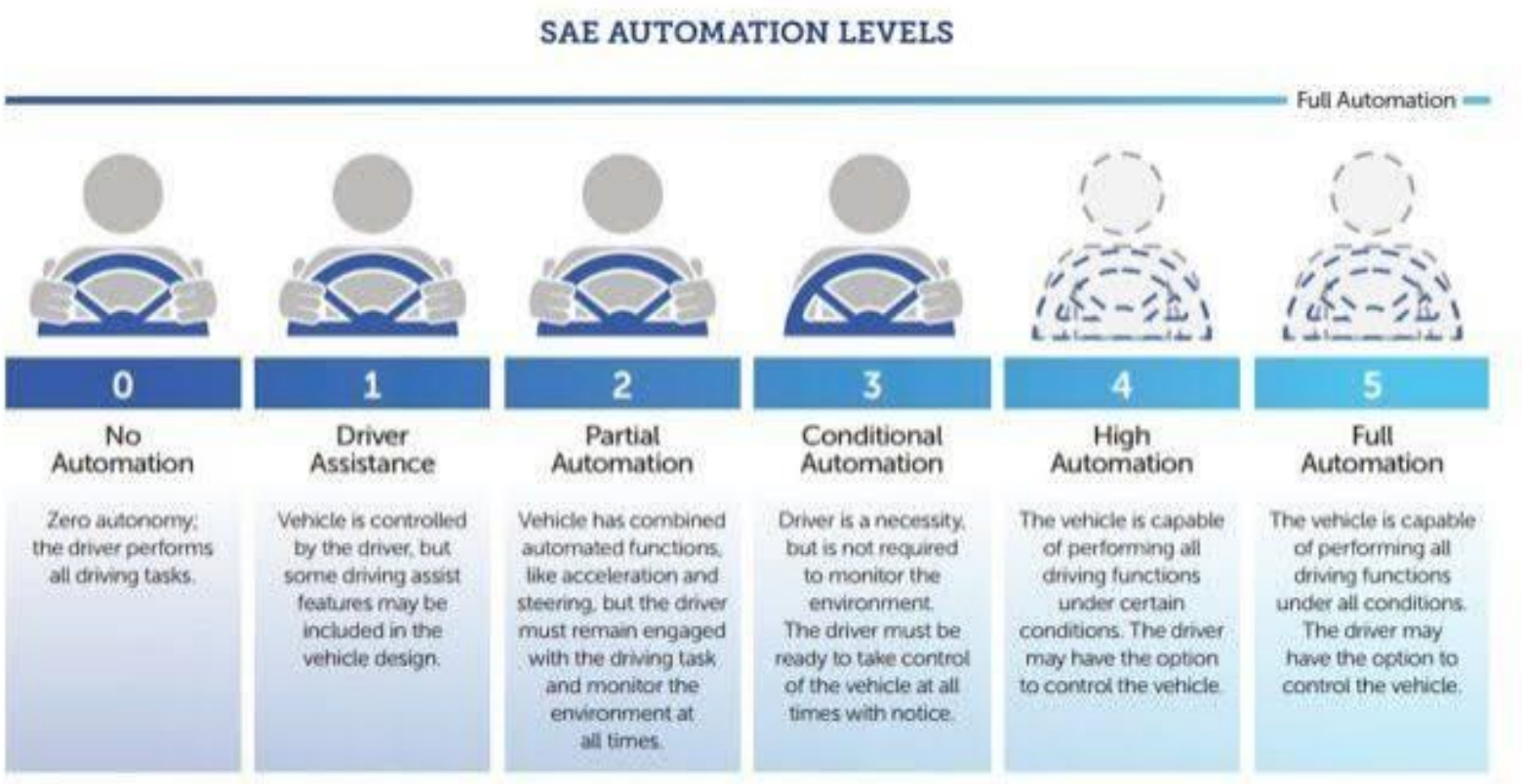
- Preparing infrastructure for future vehicles

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Levels of Automation

Automation Levels 0–5

- Driver assistance
- Partial automation
- Conditional automation
- High automation
- Full automation



Why Agencies Should Care

Infrastructure matters

- Signs
- Pavement markings
- Retroreflectivity
- Consistency
- Maintenance

Machine Readability

Helping sensors 'see' the roadway

- Clear lane markings
- Standard symbols

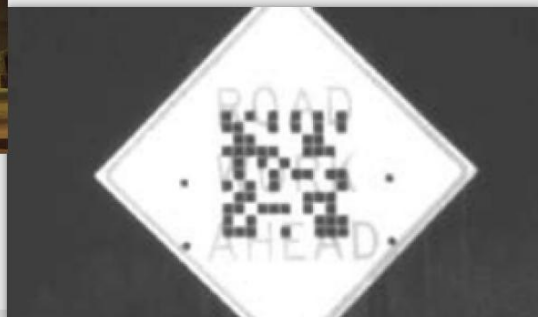
Part 5 Automated Vehicles

Signing Considerations

- New Standards allowing scanning graphics to be placed on signs. However, they shall not be visible to the human eye.
- Sign and information spreading important.
- Consistency in sign designs.







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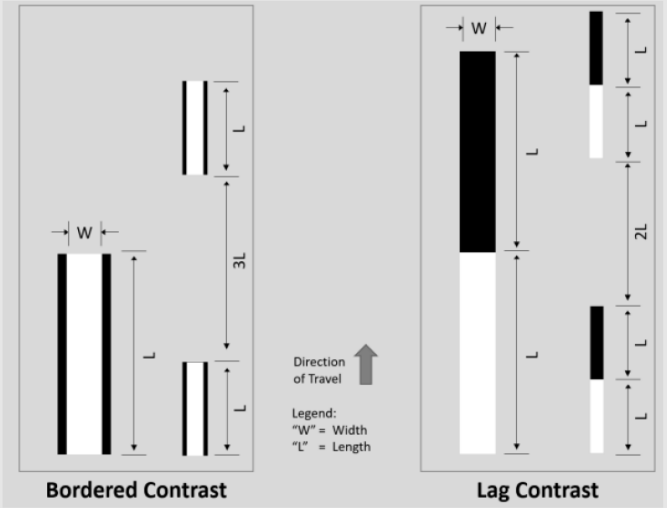
Preparing Your Community

Implementation checklist

- Inventory signs and markings
- Maintain retroreflectivity
- Review striping
- Plan for future technology

Marking Considerations

- Utilizing 6-Inch Pavement Markings.
- Dotted 6-Inch edgelines along entrance and exit ramps.
- Chevron markings in neutral areas of exit gores.
- Utilizing contrast pavement markings (black lag has better camera detection vs. bordered contrast).



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Part 6 Overview

- Temporary Traffic Control

- Provide safe movement for motorists, workers, pedestrians, and bicyclists
- Major reorganization in the 11th Edition
- Greater emphasis on vulnerable road users

What's New in Part 6

Key Changes

- Expanded chapter organization
- Late merge guidance
- Bicycle work zone applications
- Audible information devices

New Content

- Late merge 6N.19
- Updates to signing throughout
- Vulnerable road user
  - Audible information devices
  - Bicycle typical applications







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Wisconsin TTC Updates

WMUTCD Changes

- Flagger certification requirements
- Flagger PPE requirements
- 5-foot paddle height
- Wisconsin statutory references

Flagging

- Flagger PPE, pants requirement, 6C.05 07

Standard:

07 For flagger wear during nighttime activity, high-visibility safety apparel that meets the Performance Class 3 requirements of the ANSI/ISEA 107–2015 publication entitled "American National Standard for High-Visibility Apparel and Headwear," or equivalent revision, and labeled as meeting the ANSI 107-2015 standard performance for Class 3 risk exposure shall be worn.

For flagger wear during all hours, high-visibility safety pants that meet the Performance Class E requirements of the ANSI/ISEA 107-2015 publication entitled "American National Standard for High-Visibility Apparel and Headwear," or equivalent revision, and labeled as meeting the ANSI 107-2015 standard performance shall be worn.



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Designing Work Zones

Protect Every Road User

- Maintain pedestrian access
- Provide bicycle accommodations
- Consider ADA accessibility
- Minimize driver confusion

Part 8 Overview

- Railroad Grade Crossings

- Improve safety through coordination
- Engineering studies
- Diagnostic team process

Major Changes in Part 8

What's New

- Diagnostic team consensus
- Clear storage distance
- Adjacent crossing guidance
- Median treatments

Presenter Tip: Connect each update to how it improves safety and operations.

Diagnostic Teams

Working Together

- Railroad
- Road authority
- Regulatory agency
- Engineering study

- New standard paragraphs to require that Diagnostic team shall reach a determination through consensus, documented in an engineering study on new grade crossing traffic control systems and on proposed changes to existing systems. OCR is the regulatory agency with statutory authority.
  - There are a large number of variables to be considered
  - No single system of traffic control devices is universally applicable for all grade crossings
  - Diagnostic team's recommendation shall be made based on site visits, meetings, conference calls, correspondences (e-mail, docket uploads, or phone calls) or a combination of the above

Guidance: Attendees should attend at the expense of their respective organization unless reimbursement is authorized ahead of time by highway agency or WisDOT

Part 9 Overview

Bicycle Facilities

- Support active transportation
- Improve consistency
- Enhance safety for bicyclists

Presenter Tip: Connect each update to how it improves safety and operations.

What's New in Part 9

Bicycle Changes

- Share the Road plaque removed
- New bicycle yield treatments
- Updated bike lane markings
- Left Turn Yield to Bikes sign

Presenter Tip: Connect each update to how it improves safety and operations.

Bike Lane Markings

Implementation

- Place symbols at beginning of lane
- Repeat after major intersections

Yield Markings and Signs



R9-6

- Part 3 allows for *optional* R9-6 Bicycles Yield to Pedestrian sign at yield markings for pedestrian crossings
  - Also addressed in Section 9B.12
- This allows for the use of a smaller Yield to Peds sign on bikeways

Section 3B.19 Stop and Yield Lines

Option:

01 Stop lines may be used to indicate the point behind which vehicles are required to stop in compliance with a STOP (R1-1) sign, a Stop Here for Pedestrians (R1-5b) sign, a Stop Here for School Crossing (R1-5c) sign, a Stop Here for Trail Crossing (R-5e) sign, or some other traffic control device that requires vehicles to stop, except YIELD signs that are not associated with passive grade crossings.

Option:

11 If a yield line marking is used on a bicycle facility, a Bicycles Yield to Pedestrians (R9-6) sign (see Section 9B-12) may be used.

Section 9B.12 Bicycles Yield to Peds Sign (R9-6)

Option:

01 The Bicycles Yield to Peds (R9-6) sign (see Figure 9B-1) may be used at locations where a bicyclist is required to cross or share a facility used by pedestrians and is required to yield to the pedestrians.

Standard:

02 **Where the Bicycles Yield to Peds sign is supported by a yield line pavement marking (see Section 3B.19) to establish the yielding point, the sign and the pavement marking shall be installed adjacent to each other.**

03 **The Bicycles Yield to Peds sign shall not be used in bicycle corridors to establish a programmatic regulation where no yielding point exists.**

04 **The Bicycles Yield to Peds sign shall not be used in conjunction with a STOP or YIELD sign, Yield Here to Pedestrians Sign, or a Stop Here for Pedestrians Sign.**

Shared Lane Signage

- W16-1P Share the Road eliminated
- See Sections 2C.67 and 9C.08
- W11-1 Bicycle Warning sign may be used with W16-1P or W16-1aP



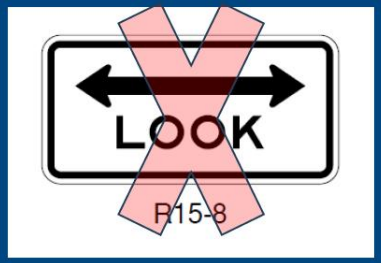




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WMUTCD - Specific

- Chapter 9B.23 – The R15-8 LOOK sign has been removed from the WMUTCD



- Chapter 9C.04 – If used in advance of a trail crossing, a W11-15 or W11-15a sign ~~may~~ shall be supplemented with an AHEAD (W16-9P) plaque





Implications for Tribal Communities

Putting It Into Practice

- Support tourism and recreation
- Improve access to schools and community centers
- Plan for multimodal travel

Presenter Tip: Connect each update to how it improves safety and operations.

Implementation Overview

Putting the 11th Edition WMUTCD into Practice

- Understand adoption timelines
- Prioritize implementation
- Use engineering judgment
- Document decisions

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Compliance Dates

Transition Planning

- Review FHWA/WMUTCD compliance dates
- Identify obsolete devices
- Plan phased replacements
- Coordinate with budgeting cycles

Inventory Your Assets

Know What You Have

- Signs
- Pavement markings
- Signals
- Rail crossings
- Work zone devices

Prioritizing Improvements

Where to Start

- Address safety-critical issues first
- Replace obsolete signs
- Improve retroreflectivity
- Focus on high-risk locations

Engineering Studies

Supporting Decisions

- Document engineering judgment
- Maintain study records
- Use crash and traffic data
- Coordinate with stakeholders

Training Your Staff

Building Knowledge

- Maintenance crews
- Design staff
- Inspectors
- Contractors
- Elected officials

Working with Tribal Communities

Collaboration

- Respect local priorities
- Coordinate with BIA/FHWA where appropriate
- Engage community members
- Support multimodal access

Funding Opportunities

Planning Ahead

- Federal aid
- State programs
- Safety grants
- Asset management planning

Knowledge Check

Review

- What changes affect your agency?
- Which projects should be prioritized?
- What resources will you use?

Course Summary

Key Takeaways

- Consistency improves safety
- Engineering judgment remains essential
- Plan implementation strategically
- Support all road users

Thank You!

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