The MUTCD: Where It’s Been and Where It’s Going

1930s

Gene Hawkins
Texas A&M University

Early 1950s

Stop

1920s

Stop

1940s

Stop

1960s

Stop

Today

Gene Hawkins
Texas A&M University

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The MUTCD: Where It’s Been

There have been 9 editions of the MUTCD

### MUTCD Comparisons

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How did we end up with a such large document on traffic control devices?
Traffic Control Devices

Early markers used in the Roman Empire
Used on pioneer trails in America
Automobile age created new demands
Early Intersection Control

Hand signals, police, and semaphores
Traffic Signal Towers
Early Traffic Signals

Many different signal designs
More Early Signals
Early Traffic Signs
Early Traffic Control Devices

The wide variety of devices created the need for uniformity

1911 - 1st centerline Michigan

1920 - 1st 3-color signal Detroit

1914 - 1st electric signal Cleveland
1923 Sign Shape Recommendations

Mississippi Valley Assoc of St Hwy Dept
Number of sides represents hazard level

- RR Grade Crossing
- Stop Intersection
- Warning (speed reduction)
- Caution
- Directions or Regulations
1924 Sign Color Recommendations

National Conference on Street and Highway Safety

For signs and signals

- **Red** - stop
- **Green** - proceed
- **Yellow** - caution
- **White** - directions or distance
- **Purple** - intersection

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1925 Joint Board Report

Report of Joint Board on Interstate Highways

AASHO led

Developed U.S. Highway system

Included recommendations for standard signs
1927 AASHO Manual

Evolved from Joint Board
First national manual
Rural signs only
Title:

Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs

Revised 1929 and 1931
1927 Signs

Block letter font
1930 NCHS Manual

Prepared by American Engineering Council

Title: Manual on Street Traffic Signs, Signal and Markings

Signs, markings, and signals for urban areas

Not Revised
1930 Signs

- Speed Limit 20 Miles
- Through Traffic
- Caution School Zone
- RR
- Curves
Birth of the MUTCD

Problems of two manuals led to creation of the MUTCD

Joint Committee

1927 Rural Manual

1930 Urban Manual

1935 MUTCD
*CUTCD Evolution

**Joint Committee, 1932, 2 organizations**

**National Joint Committee, 1948, 5 organizations**

**National Advisory Committee, 1972, 10 organizations**

**National Committee, 1980, 17 organizations**
National Committee on Uniform Traffic Control Devices

NCUTCD
Private organization
Provides input to FHWA on the MUTCD
Seven committees
  R/W signs   Temp Traffic Ctrl
  G/MI signs  Grade Crossings
  Markings    Bicycles
  Signals
Over 200 professionals
  Meet twice a year
1935 MUTCD

First MUTCD (1935 & 1937 versions)

Signs
  White or yellow
  Diamond, square, circle, octagon

Markings
  White, yellow, or black

Signals
  3-color signal as standard

Revised 1939
1935 Signs
1942 MUTCD

Few major changes
Addressed wartime conditions
Conservation of materials
Blackout traffic control

Not Revised
1948 MUTCD

Significant rewrite

Signs
- Simplified messages
- Eliminated square signs
- Added advisory plate
- Rounded alphabet

Pavement markings
- Yellow - Double center & barrier line
- White - all other applications
- Edge lines not recommended

Simplified signal warrants

Revised 1954
Early Stop & Yield Signs
1954 Revision

Significant sign changes

THRU STOP HWY Became STOP

Secondary messages eliminated

New Sign

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1958 AASHO Interstate Manual

Created for the new Interstate Highway system

New features
  - White on green guide signs
  - Lower case letters
  - Green on white service signs
  - Utilized larger sign sizes

Blue service signs added in 1961 revision

New Interstate Signs

INTERSTATE TEXAS 10

BUSINESS SPUR 75

Metropolis Utopia

EXIT 30 M.P.H.

REST AREA 2 MILES
1961 MUTCD

Federal compliance required

New material:

Construction traffic control
Civil defense signing
Freeway guide signing

Not Revised
1961 Signs

- Yield Sign
- Metropolis Utopia Sign
- Only Sign
- Texas US 81 Sign
- Evacuation Route Sign
1971 MUTCD

Significant rewrite
DOT ownership
New features:
  Content: school areas
  Color: orange
  Shapes: pennant, pentagon
International sign influence
Many new symbols
Yellow markings for opposing traffic

Revised 8 times

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1971 Signs
1978 MUTCD

Update of 1971 edition
Loose leaf (binder) format
   Individual page revisions
New content
   RR-hwy grade crossings
   Bicycle facilities
Yellow markings on left side

Revised 4 times

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1988 MUTCD

Update of 1978 edition
Included new revision (#5)
New content
Recreational/cultural signs
Logo signs
TODS
Planned to be revised only for safety reasons

Revised 7 times
Rev 3: Part VI
MUTCD During the 1990s

Blue ribbon panel (1989)

Recommended reformat and rewrite of 1988 MUTCD

Need to clarify intent (shall, should, may)

Recognition of language challenges

“shall be permitted”  “may be justified”
“shall preferably be”  “it is desirable that”
“normally should”   “it is necessary that”
“may be required”   “is intended for use”

Reformat/rewrite process started in early 1990s

Multiple proposed rules from mid- to late-1990s
MUTCD Rewrite Effort

First step
Evaluate current language
Reformat all content
   Classify as standard, guidance, option, support (with headings)

Second step
Rewrite reformatted language
Update content
Fix inconsistencies

Result: Millennium MUTCD
2000 MUTCD

Millennium edition
Reformatted/rewritten
First web edition
Final rule published without chance to review MUTCD in its entirety
Several editorial and technical shortcomings

1 Errata
1 Revision

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Significant Changes

New structure
   Standard, Guidance, Option, Support
New parts added to MUTCD
   Low Volume Roads
   Highway-Light Rail Transit Grade Crossings
Islands part deleted
Definitions added
Primary units metric
Selected Key Changes

- Legibility index = 40 ft/in
- Sign graphics not accurate
- Lane ending symbol (W4-2) dropped
- Crosswalk lines dropped from crossing signs
- New Yield Line
- In-road lights
2003 MUTCD

Current edition (9th overall)
Update of 2000 MUTCD

Changes

Editorial improvements
Graphics correct
Minor technical corrections
Some new material

Compressed text
982 to 754 pages

2 Revisions
Selected Key Changes

Some new/revised signs
New sign color
  Pink for incident mgmt
Countdown ped signals
Metric sign changes
Accessibility in work zones
Rev 2: Min sign retroreflectivity
NPA for 2009? MUTCD

Federal Register NPA - January 2, 2008
Comments due July 31, 2008
Proposed text/figures on MUTCD web site
GH perspective on changes
   Fine tuning of TCD use
   More specific and detailed guidance
   More devices addressed
Final rule in 2009 or 2010

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MUTCD: Where It’s Going

Next edition to be published in 2009/2010
Currently out as NPA
Future editions to be published at 5-8 year intervals
NCUTCD/FHWA drafts, NPA, Final Rule
What will MUTCD be like in 25 years?
Depends on what people want
NCUTCD initiating MUTCD Strategic Planning Effort

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MUTCD Future Issues

What is the MUTCD?
Book of standards or book of practices

Who is the MUTCD audience?
Traffic engineers, agencies, lawyers, public, elected officials, architects, private property

What should be in the MUTCD?
TCD principles or traffic engineering practices

What is a traffic control device?
Sign, signal, marking, rumble strip, floodlight, roundabout, glare screen, detectable warning
What is a TCD Issues

Truncated dome - tactile warning for pedestrian
Rumble strip - tactile warning for vehicle
  Longitudinal and transverse
Raised crosswalk for peds and vehicles
Other traffic calming features
Roundabouts replacing traffic signals

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MUTCD Trends

Trend for less traffic engineering experience within agencies

MUTCD is encompassing more and more information
  - Broadening subject matter
  - Providing more detailed guidance
  - Desire to have important non-TCD guidelines because everyone has the MUTCD (a one-stop document)

Desire to avoid litigation - more specific details in the MUTCD
Potential Outcome

Perhaps a multi-volume MUTCD

Volume 1: Administrative stuff
  Procedures, definitions
Volume 2: Devices
  Signs, signals, markings
Volume 3: Applications
  Work zones (TTC), schools, RR crossings
Volume 4: Practices
  Setting speed limits, signal timing, traffic calming
Evolution of the MUTCD: Early Standards for Traffic Control Devices

BY H. GENE HAWKINS, JR.

Seventy years ago, traffic control devices were a concern of relatively few individuals in the United States. Signs and markings were placed and maintained by auto clubs, local agencies, or state highway departments, with little regard for consistency across jurisdictions.

Today, the Manual on Uniform Traffic Control Devices (MUTCD), which sets forth the basic principles that govern the design and use of traffic control devices, has become an indispensable tool for traffic engineers and road safety professionals. The MUTCD, first published in 1935, has always been one of the “bibles” of the profession and continues in that capacity.

Mutcd.fhwa.dot.gov
MUTCD History
MUTCD History Presentation
ITE Journal articles

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Signs Not in the 2003 MUTCD
Questions