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

1930s

1920s

Early 1950s

Today

1960s

1940s

Gene Hawkins
Texas A&M University

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The MUTCD: Where It’s Been

There have been 9 editions of the MUTCD


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## 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

Roman Empire  Colonial America  Early 20th Century

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Early Intersection Control

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

Many different signal designs
More Early Signals
Early Traffic Signs

Need for devices increased with more

Little coordination between agencies

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Early Traffic Control Devices

The wide variety of devices created the need for uniformity.

- **1911 - 1st centerline**
  - Michigan

- **1914 - 1st electric signal**
  - Cleveland

- **1920 - 1st 3-color signal**
  - Detroit
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

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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
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

- **STOP**
- **KANSAS**
- **US 56**
- **MEN WORKING**
- **RR**
- **CURVE**

*Block letter font*
Prepared by American Engineering Council

Title:

Manual on Street Traffic Signs, Signal and Markings

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

1927 Rural Manual

Joint Committee

1930 Urban Manual

1935 MUTCD

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*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
1942 MUTCD

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

Not Revised
Blackout Devices
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
1948 Signs

SPEED LIMIT 50

STOP AHEAD

BRYAN 8
HEARNE 25

35 M.P.H.

KEEP RIGHT
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


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New Interstate Signs

INTERSTATE 10

BUSINESS SPUR 75

56
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

Metropolis Utopia

ONLY

Texas US 81

81

Evacuation Route
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
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
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

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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

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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
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
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
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

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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 or uniformity. The Manual on Uniform Traffic Control Devices (MUTCD), which sets forth the basic principles that govern the design and use of traffic control devices. 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

Manual on Uniform Traffic Control Devices (MUTCD)

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Questions