The MUTCD: Where It’s Been

There have been 9 editions of the MUTCD

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

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<tr>
<th>Edition</th>
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<td>1971</td>
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Traffic Control Devices History

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
Automobile Age
Early Intersection Control

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

Many different signal designs
Early Traffic Signs

Little coordination between agencies

Speed Limit 15 Miles Per Hour
On Curves Between
On Curves Between

STATE TRUNK LINE
M 29

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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

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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

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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

Signs, markings, and signals for urban areas

Title:

Manual on Street Traffic Signs, Signal and Markings

Not Revised
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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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

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1935 Signs

- Thru Traffic Stop
- Right Turn
- Railroad Crossing
- One Way
- Lexington 10
- Huntington 148
1942 MUTCD

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

Not Revised
Blackout Devices
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

- Stop Ahead
- Speed Limit 50
- Keep Right
- Bryan 8
- Hearne 25
- 35 M.P.H.
Early Stop & Yield Signs
1954 Revision

Significant sign changes

Secondary messages eliminated

New Sign
Traffic Signal Legacies

Non-standard traffic signals continued in use through the 1950s and 1960s in some locations

Darley 2 bulb signal

Wiley signal

NYC Olives
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 10
- Interstate 75
- Business Spur
- Interstate 56 (Metropolis Utopia)
- Exit 30 M.P.H.
- Rest Area 2 Miles
Federal compliance required

New material:

- Construction traffic control
- Civil defense signing
- Freeway guide signing

Not Revised
1961 Signs

- Yield sign
- Highway signs for Metropolis Utopia
- Lane usage sign
- Texas US 81 signs
- 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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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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1978 Signs

- Center Lane Only
- Buses and 4 Rider Car Pools Only (6AM-9AM Mon-Fri)
- Bike Route
- Construction Work Ahead
- Stop Sign
- Road Work Ahead

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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

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
Many 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

Courtesy of S. Wainwright, Montgomery County

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2003 MUTCD

Current edition (9th overall)
Update of 2000 MUTCD

Changes
- Editorial improvements
- Graphics corrected
- 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
Revisions:
  1: Pharmacy signing
  2: Min sign retro

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2009? MUTCD

Federal Register NPA - January 2, 2008
Docket closed July 31, 2008
Proposed text/figures on MUTCD web site
Many proposed changes
513 significant ones
Other additional changes
Perspective on changes
Fine tuning of TCD use
More specific and detailed guidance
More devices addressed
Final rule in 2009?
NCUTCD History

Joint Committee, 1932, 2 organizations

National Joint Committee, 1948, 5 organizations

National Advisory Committee, 1972, 10 organizations

National Committee, 1980, 17 organizations

NCUTCD history task force
Dick Luetich, chair
Charged with preparing a history of the JC/NJC/NAC/NCUTCD

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1978 NAC Meeting (Scottsdale, AZ)

General Session
MUTCD: Where It’s Going

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 owners, +++

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, ...

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MUTCD Trends

National trend of 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
Top Traffic Engr Publications

Posting to ITE Traffic Engr listserve (Apr 04)
What are the top 3 TE documents?
19 responses

18 - MUTCD
11 - Green Book
10 - Highway Capacity Manual
6 - Trip Generation and TE Handbook
1 or 2 each - Assorted other publications

⇒ Everyone uses the MUTCD!
Previous efforts to define an “MUTCD Vision”

Mid-1960s: sponsored by ITE
1998 meeting organized by FHWA
2005 meeting organized by FHWA

Current effort

NCUTCD MUTCD Strategic Planning Effort
“Town Hall” meeting on Friday
Future task force meetings
Goal: prepare a MUTCD vision and strategic plan to achieve the vision
Task force web page
Google Gene Hawkins (CE Prof) and click MUTCD link
Initial questions on next slide
Strategic Planning Questions

What are the strengths and weaknesses of the MUTCD?
What are the opportunities and threats facing the MUTCD?
Who is the target audience of the MUTCD? Who are the MUTCD stakeholders?
What is the MUTCD supposed to be? (what is the goal of the MUTCD)
What should the MUTCD address? (what content should be included in the MUTCD)
How should the MUTCD be structured? (what is the best way to organize the content)
How often should the MUTCD be revised?
What is the best means of revising the MUTCD? (should it be revised as an entire document or should revisions address limited aspects?)
What issues should be considered in the development of a strategic plan for the MUTCD?
What is the proper balance between identifying good practices and mandatory/recommended practices?
Can the MUTCD be all things to all people?
What is a traffic control device?
If the MUTCD is defined as a book of principles/standards/guidelines for traffic control devices, should the MUTCD address topics that are not defined as a traffic control device?
Who should be responsible for maintaining the MUTCD?
Other issues as identified ...
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, and traffic control companies. Today, the MUTCD (Manual on Uniform Traffic Control Devices) has evolved into a comprehensive and systematic set of standards for traffic control devices. The MUTCD, first published in 1935, has always been one of the “bibles” of the traffic engineering profession.

One day in the late 1980s, I was running through my parent’s garage and came across a 1948 MUTCD that my father used when he was in charge of highway traffic in the mid-1950s. While perusing that document, I found that stop signs were yellow, highway centerlines could be white, and it was an open-eye experience that led me to begin collecting old traffic engineering books. In 1990, I was fortunate enough to obtain the national MUTCD from The Eno Foundation for Traffic Safety. These documents provided great insight into how our current system of traffic control devices came into existence.

Armed with these documents, I now have a much better understanding of how the MUTCD has evolved over several generations. Insight which I felt was largely lost to our current generation of traffic engineers. MUTCD changes are documented in two primary areas: MUTCD history and MUTCD changes.

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Signs Not in the 2003 MUTCD
Questions