



Traffic Control Devices for Bicycle Facilities Experimentation and Risk

An update from the National Level

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Presentation Outline

- The NCUTCD – History & Role
- Hierarchy of bikeway design references
- MUTCD Status
- Role of the Experimentation process
- Interim Approvals
- Risks of non-compliance

NCUTCD HISTORY

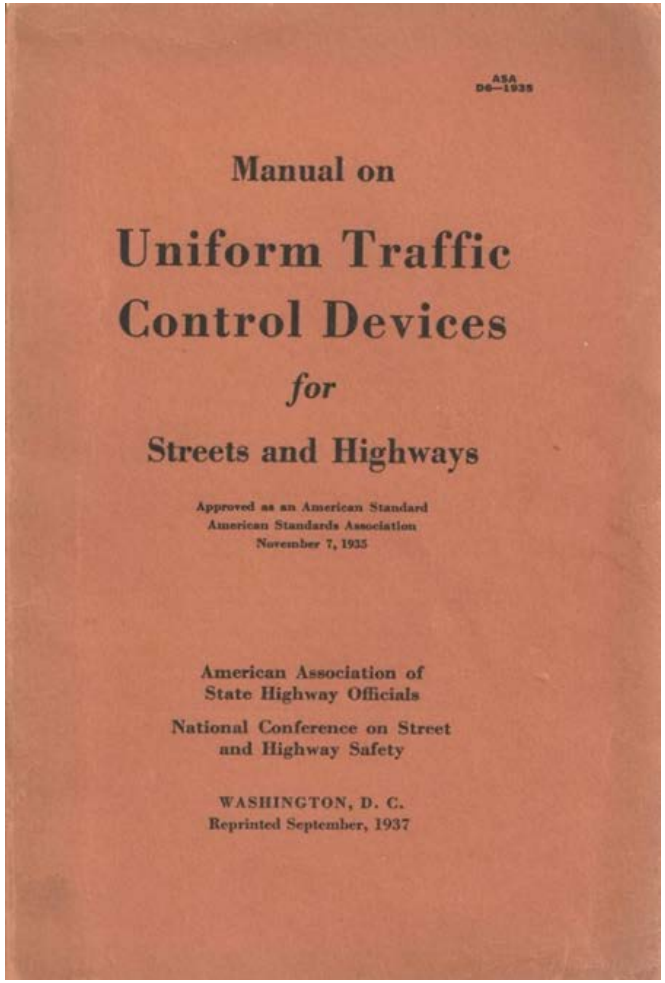
- Formed in 1931, wrote the MUTCD 1935 - 1971 editions
- Since 1971, NC advises FHWA on MUTCD content
- **Note – final decision on Manual content and schedule for MUTCD update rests with the Federal government, not the NCUTCD**

NCUTCD MISSION

- Focuses on standards, guidelines and practices for traffic control devices
- Recommends proposed revisions to the MUTCD
- Provides forum for professionals with diverse backgrounds to exchange information
- Volunteer organization membership open to interested professionals

What is the NCUTCD?

- **2 Parts:**
  - Council: 36 voting members representing 21 sponsoring organizations
  - Technical Committees: Develop proposed changes to the MUTCD



NCUTCD Technical Committees

- Regulatory/Warning Signs
- Guide/Motorist Information Signs
- Markings
- Signals
- Temporary Traffic Controls
- RR & Light Rail Grade Crossings
- Bicycles
- Research

NCUTCD Process

- Technical Committees review completed research and/or experimentation results
- Technical Committees develop draft proposals
- Proposal review by sponsoring organizations
- Technical Committees revise proposals
- Proposals discussed and voted on by Council
- If approved, submitted to FHWA as recommended change to the MUTCD
- Membership open to interested professionals

Policy for Bike and Ped Accommodation

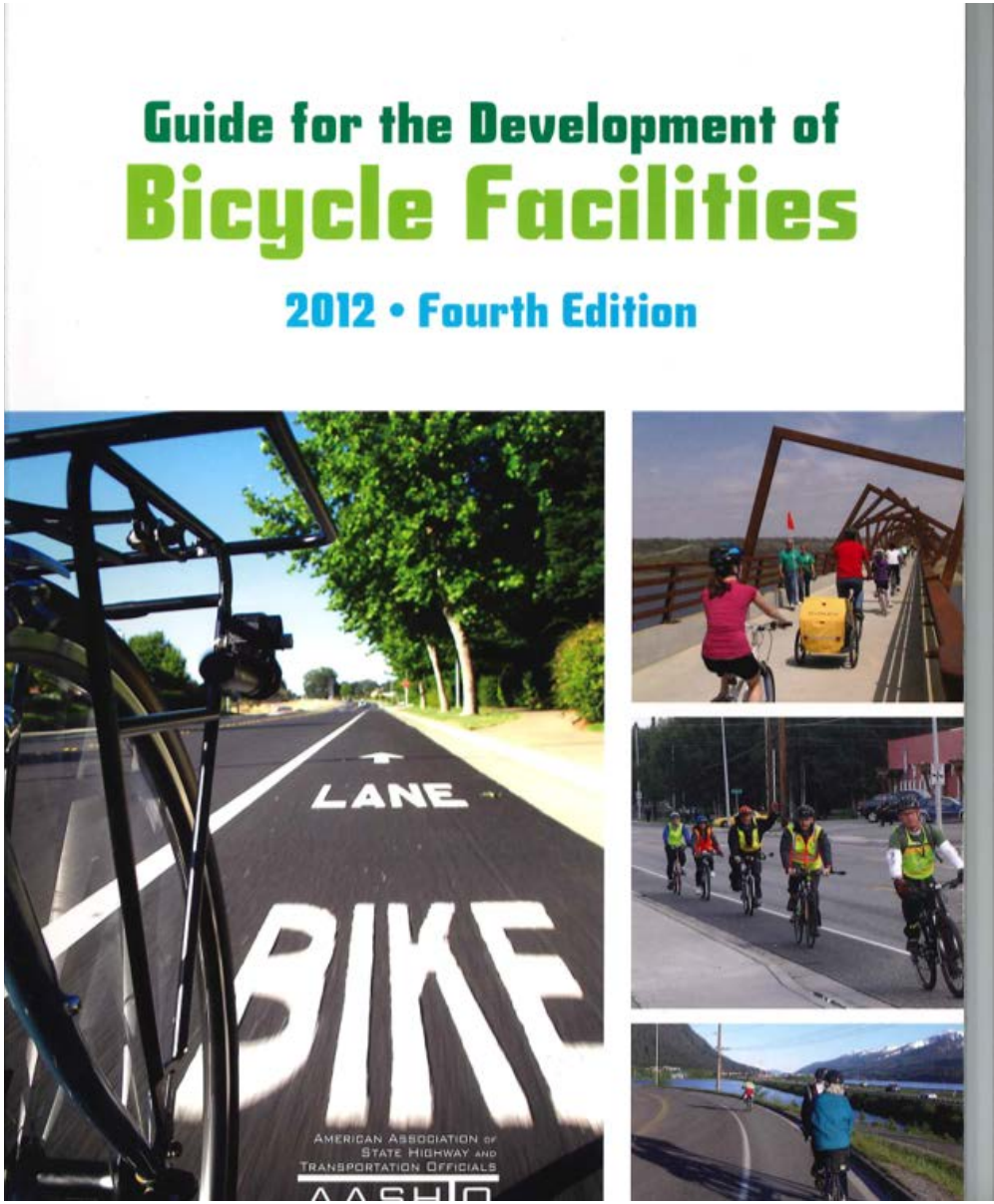
- The USDOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems.

The "Standards"

- Official FHWA Guidance Memo-Flexible Design dated August 20, 2013 expressing support for taking a flexible approach to bicycle and pedestrian facility design.
- AASHTO *Bicycle Guide and Pedestrian Guide* are the primary national resources for planning, designing and operating bicycle and pedestrian facilities.
- MUTCD or State Supplement

The "Standards"

- New AASHTO Guidelines- Released June 2012
- Expanded from 75 to over 200 pages
- 3 chapters to 7 chapters
- Expanded information on intersection treatments
- PDF'S of webinars available offered at www.bikepedinfo.org

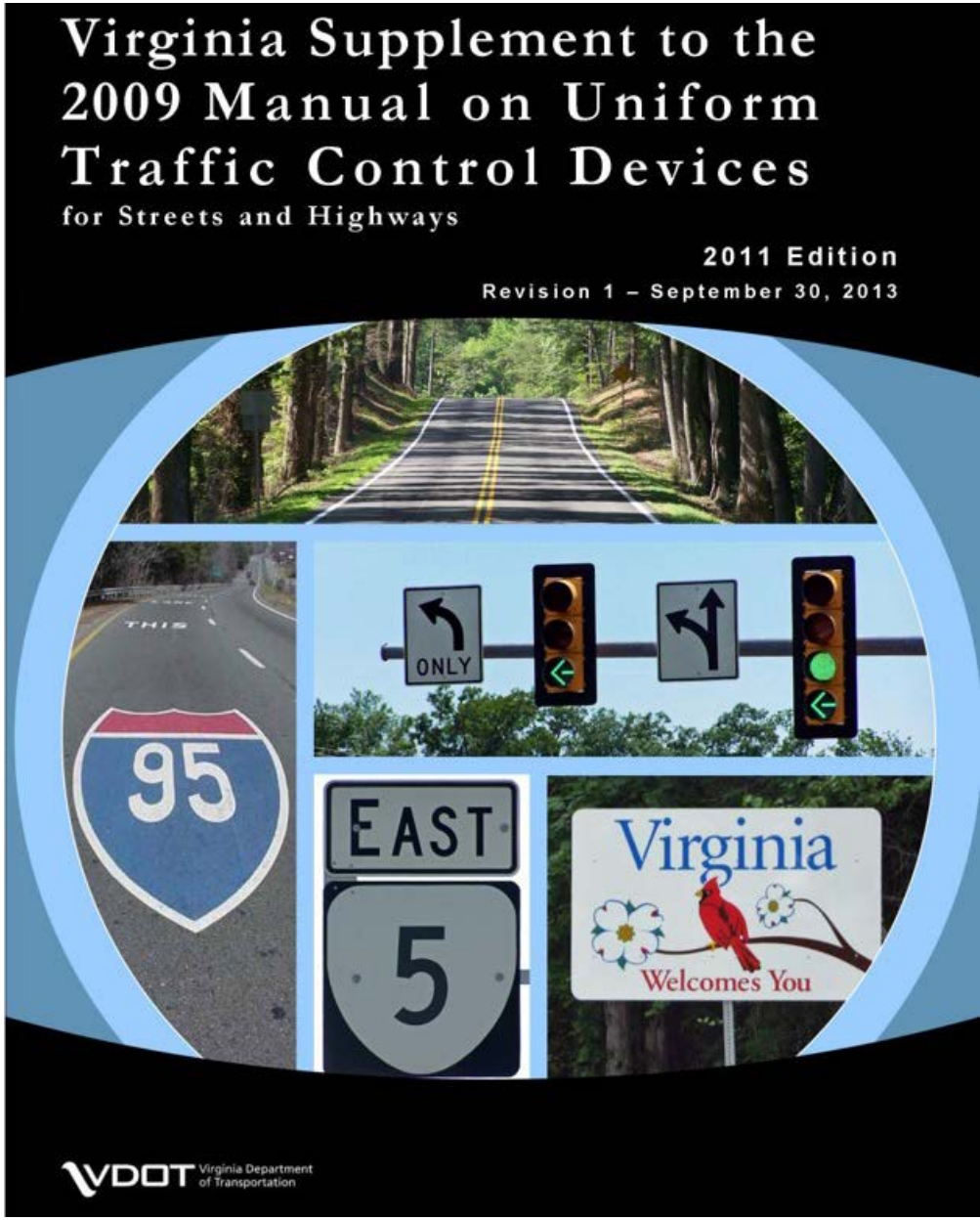


The "References"

- The NACTO *Urban Bikeway Design Guide* and the ITE *Designing Urban Walkable Thoroughfares* builds upon the flexibilities provided in the AASHTO Guides.
- The vast majority of NACTO *Guide* is either allowed or not precluded but non-compliant TCD's may be piloted through the MUTCD experiment process.

The "Standards"

- "The Manual on Uniform Traffic Control Devices (MUTCD) is incorporated by reference in the 23 CFR 655 and shall be recognized as the national standard for all traffic control devices installed on any street, highway , bikeway or private road open to public travel…" 2009 MUTCD.
- Some states have adopted Supplements to the MUTCD or a "state version."



Why National Standard?

- Uniformity of design and placement of Traffic Control Devices is critical to safe operation for all roadway users.
- Consistency of TCD's with traffic code/rules of the road.
- The US UVC has not been updated since 2001(ish)


STOP


STOP

“What if it’s not in the MUTCD”
Official Experiments

Official Experiments /Rulings

- **Goal**: to seek effective traffic control devices
- **Purpose**: to allow practitioners to test new or innovative traffic control devices or applications

Official Experiments

- The official experimentation process is described in Section 1A.10 of the 2009 MUTCD, Paragraphs 8 - 11
- A State DOT or a local agency must request approval from FHWA to conduct an experiment
- Request must include a research plan describing what data will be collected, how it will be collected, and how it will be analyzed
- Key is for experimental plan to produce data for objective (not subjective) results
- Experiment may begin s after written approval from the FHWA
- Successful experimentation is utilized by NCUTCD & FHWA to recommend updates to the Manual

Bicycle Devices Under Interim Approval

- Five Interim Approvals (IAs) addressing bicyclists issued since the 2009 MUTCD:
  - IA-14 – Green Colored Pavement
  - IA-15 – Modified US Bike Route Sign
  - IA-16 – Bicycle Signal Faces
  - IA-18 – Intersection Bicycle Boxes
  - IA-20 – Two-Stage Bicycle Turn Boxes
- Optional use, jurisdictions are not required to use these devices.
- A State DOT or a local agency must request approval from FHWA to use the device under Interim Approval

Official Experiments – Why Important

- Data from experiments is critical to objective, scientific evaluation of new devices
- Experimental results are also critical in the FHWA's consideration of a new device for possible Interim Approval or adoption into the MUTCD

What's the Risk of Non-Compliance?

- A jurisdiction that installs a device or application that is not in the MUTCD, that violates MUTCD requirements, or that has not received Interim Approval status, without first obtaining FHWA experimentation approval, faces these risks:
- Potential legal liability if a crash occurs (why wouldn't an agency actively monitor an experimental treatment?)
- Potential loss of Federal-Aid funding

What's the Risk?

The Manual on Uniform Traffic Control Devices (MUTCD) is incorporated by reference in 23 Code of Federal Regulations (CFR), Part 655, Subpart F and shall be recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel (see definition in Section 1A.13) in accordance with 23 U.S.C. 109(d) and 402(a). The policies and procedures of the Federal Highway Administration (FHWA) to obtain basic uniformity of traffic control devices shall be as described in 23 CFR 655, Subpart F.

What's the Risk?

Mass GL Title XIV Chapter 85 Section 2 Traffic Signs and Devices, Erection & Maintenance, Rules & Regulations: "Except as hereinafter provided, any rule, regulation, order, ordinance or by-law of a city or town hereafter made or promulgated relative to or in connection with the erection or maintenance of signs, traffic control signals, traffic devices, school zones, parking meters or markings on any way within its control shall take effect without department approval provided such signs, traffic control signals, traffic devices, parking meters, school zones or markings are in conformance with the department's current manual on uniform traffic control devices and the department's sample regulation for a standard municipal traffic code;..."

Experiment Research-Why Important

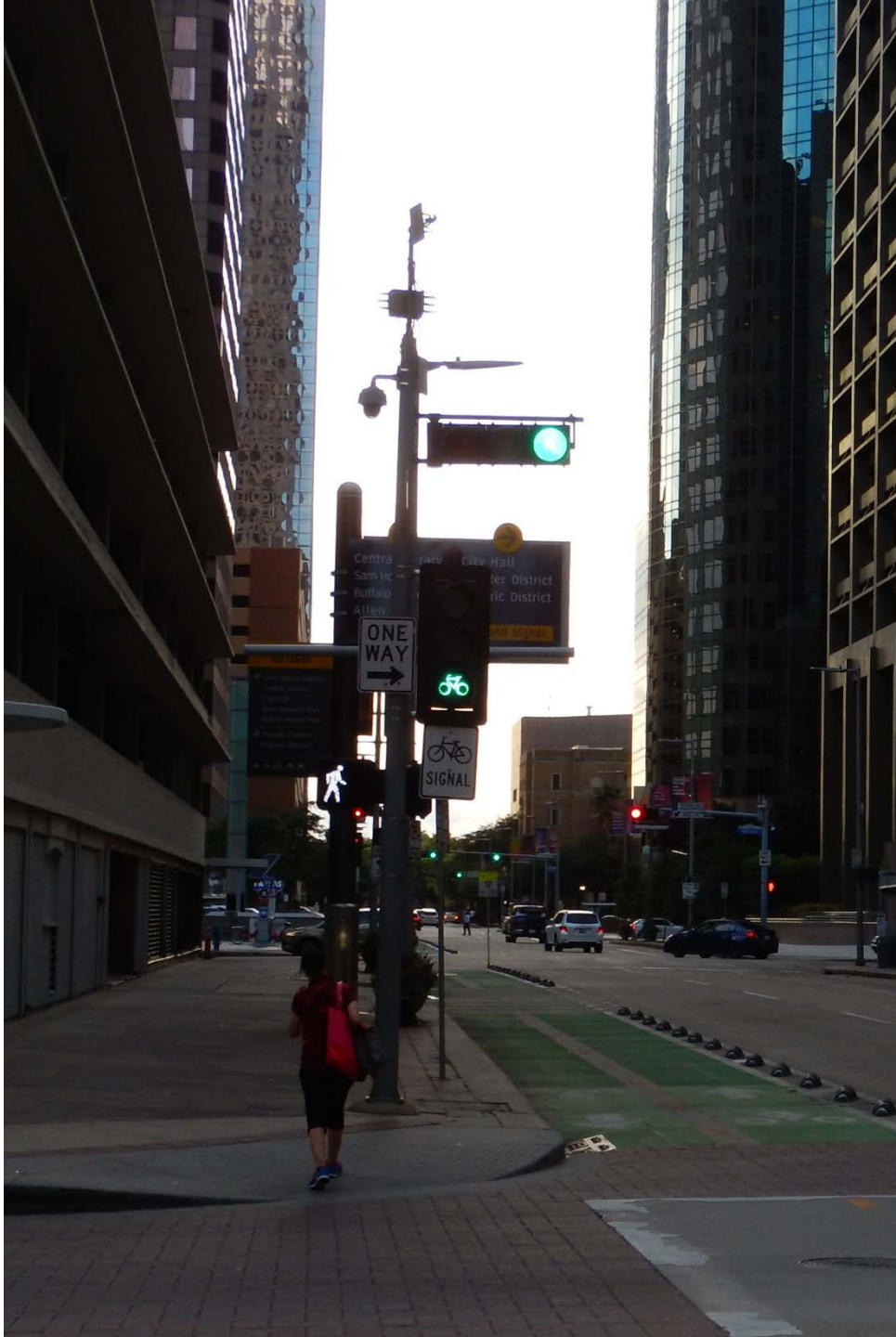
- The FHWA Status webpage provides information for submission of a request including:
  - Background on the proposed treatment and intended purpose
  - Suggested roadway characteristics
  - Minimum design elements including those required, those recommended and those that are optional
  - List of current similar experiments and contact information of local agency

Bicycle TCDs Compliant with the 2009 MUTCD

- Bike lane extension using bicycle symbols and arrows
- Green colored pavement is allowed in bike lane extensions under Interim Approval 14

Bicycle TCDs Under Experimentation

- Bicycle Signals allowing Conflicting Movements
  - IA-16 does not allow bicycle signal faces to be used where there are conflicting motor vehicle movements
  - FHWA has received many requests to relax this provision but no data or observations have been submitted
- FHWA is aware that jurisdictions are operating bicycle signals in this manner but none that have collected operational or conflict data



Bicycle TCDs Under Experimentation

- Green-Backed Shared Lane Markings
  - IA-14 reserves green colored pavement for bike lanes and bike lane extensions
  - FHWA has previously allowed experimentation with continuous green colored pavement behind shared-lane markings
  - FHWA interested to learn effects of green colored pavement behind shared-lane markings
    - Is operation improved?
    - Motorist passing distance
    - Bicyclist positioning
    - Motorist lane change behavior
    - Effect on perception of green coloring

Bicycle TCDs Under Experimentation

- Dashed Bike Lanes
  - Widespread in other countries
  - Mixed results in experimentation so far, additional experimentation underway

Non-Compliant Applications

Modifications of shared lane markings

Combined bicycle lane/turn lane where lane attempts to establish a bicycle lane

YIELD line pavement markings with a standard regulatory YIELD sign

Green channelizing devices

Bicycle signal faces with concurrent conflicting bicycle/vehicle movements.

Bicycle TCDs NOT Compliant with the 2009 MUTCD

- Non-compliant lane extension
- Principles correct
- Chevrons used alone are not in the MUTCD and are non-compliant

Non-Compliant Application of RRFB and Advance STOP Line

Take-Aways

- The knowledge and practice of designing for bicyclists is rapidly changing. Always check the FHWA MUTCD website for the latest MUTCD Interim Approvals, Letters of Clarification or Interpretations, status of experimental TCD's and answers to "frequently asked questions."
- Verify which version of MUTCD applies to your location.

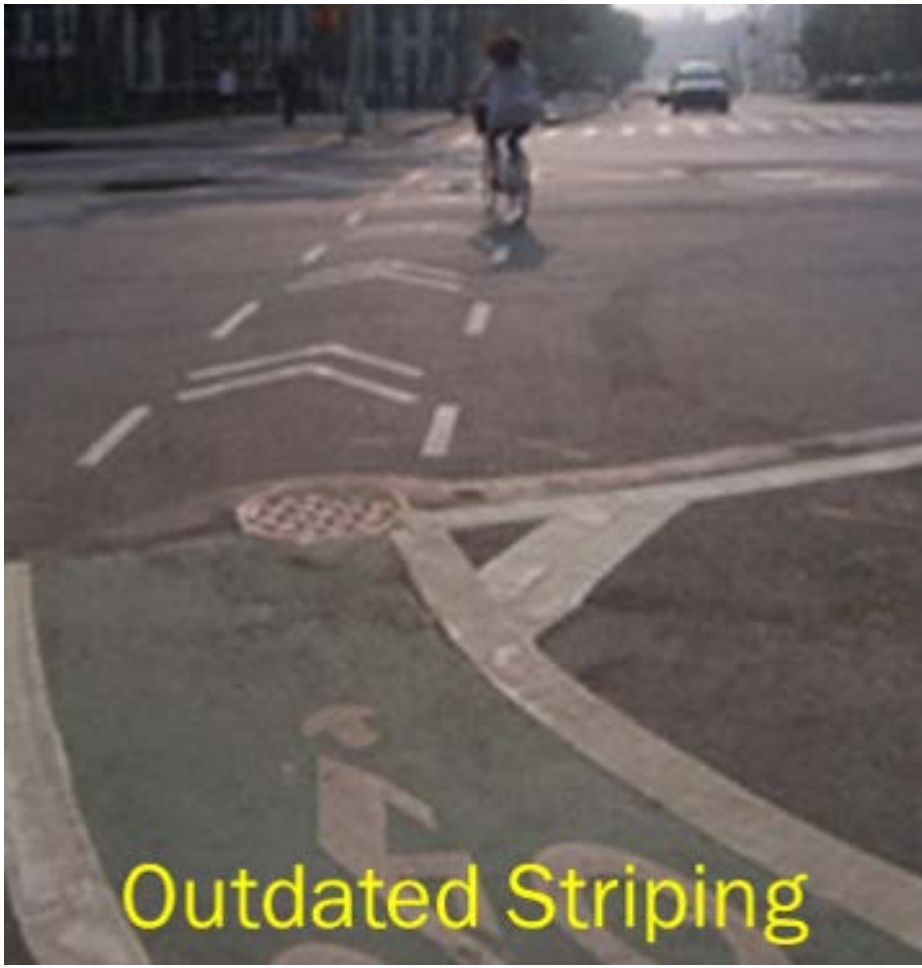


Photo credit *FHWA Course Designing for Bicycle Safety*

Resources

- FHWA sponsored source for reports, data, case studies:
  - **www.pedbikeinfo.com**
- Information on MUTCD status of new bike designs:
  - **www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/mutcd_bike.cfm**
- Information on MUTCD, links to state supplements and Interim Approvals:
  - **www.fhwa.mutcd.org**
- Information on the NCUTCD
  - **www.ncutcd.org**