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Comments on FHWA Docket No. FHWA-2020-0001
Revisions to the Manual on Uniform Traffic Control Devices

I am a lifelong bicyclist, as well as a bicycle advocate, bicycle transportation planner, and litigation consultant. My comments below concern bicycle-related provisions of the proposed revisions to the MUTCD. In support of my credentials, I'm also submitting a CV as a separate attachment.

While many of the proposed revisions are appropriate and welcome, others depart so widely from safe and prudent established practice that they could result in wholesale relegation of bicycle traffic to inferior and dangerous status, in contravention of traffic engineering principles, state regulatory frameworks, and the last fifty years of progress. These deficiencies are so great that it would not be sufficient merely to take them into account when revising the MUTCD. An entirely new draft of these sections should be created and a new NPA proposed for further public comment.

Respectfully submitted,



Alan Wachtel

¶459 and new Section 5B.06, Traffic Control for Bicycle Facilities, propose “a Guidance statement recommending that bicycle facilities be segregated from other vehicle traffic using physical barriers where practicable.” This indiscriminate Guidance is utterly intolerable. As a threshold matter, this is a design decision that does not belong in a manual on traffic control devices. More substantively, barrier-separated facilities may be appropriate in certain carefully selected locations where conflicts with turning vehicular traffic can be minimized and controlled by mixing zones or separated signal phases. Otherwise, geometric conflicts are created at every driveway and major or minor intersection, where through bicycle traffic expecting to have right-of-way passes potentially right-turning vehicular traffic in its right rear blind spot, while those drivers may already be properly occupied with traffic approaching from the left or other directions.

Physically separated facilities also present issues such as sight lines that have been obstructed by plantings or parked vehicles intended as physical barriers; inability of bicyclists to leave the facility to turn, reach a midblock destination on the left, overtake slower traffic, or avoid debris or obstacles; the permissive introduction of what would otherwise be considered wrong-way bicycle traffic; and the hostility of the remaining narrowed traffic lane to shared use by bicycles and vehicles. These deficiencies are partially acknowledged in proposed Section 9E.07.

Again, while separated facilities have their place, this guidance overlooks the lessons of the past fifty years in the benefits for both mobility and safety of integrating bicycle traffic with other modes, which is the only feasible way to accommodate bicycle traffic in the vast majority of locations.

¶596 proposes to add a new Section 9B.15, Bicycle Passing Clearance Sign (R4-19). The proposed text includes Guidance that “The Bicycle Passing Clearance (R4-19) sign should not be used on roadways with bicycle lanes or with shoulders usable for bicycle travel.” This restriction is inappropriate. State laws may require passing clearance even for bicyclists in a bicycle lane or on a shoulder. Furthermore, state laws do not in general require bicyclists to always use a bicycle lane or shoulder even where available. There are many reasons for bicyclists to travel in the roadway instead, including poor surface, debris, proximity of car doors, preparing for a left turn, or avoiding right-turn traffic. Proper passing clearance must nonetheless be maintained under these conditions.

¶599 proposes to add a new Section 9B.18, Two-Stage Bicycle Turn Box Regulatory Signing (R9-23 series), and the proposed text describes situations in which bicyclists may be required to use the two-stage turn box. Some bicyclists may prefer the simplicity of a two-stage turn box, but requiring them of all bicyclists should be a last resort, and would not always even be compatible with state law. Not only do they impose delay, but the location of the turn box places bicyclists on the undesirable right side of potentially right-turning traffic. Two-stage turn boxes should not be used as an expedient pretext to avoid proper engineering that accommodates bicycle traffic on the roadway. This comment also applies to other occurrences of two-stage bicycle turn box guidance in the proposed revision (¶¶622, 633; §§9D.13, 9E.11).

¶603 proposes to add new Bicycle Signal signs. The proposed Support is that “The primary purposes of the Bicycle SIGNAL sign are to inform road users that the signal indications in the bicycle signal face are intended only for bicycles, and to inform bicycles which specific bicycle movements are controlled by the bicycle signal face.” The same language is contained in new Section 4H.04. This formulation omits the critical information that the bicycle signal indications are intended only for bicycles *in the bikeway* or other designated location, *not* for bicycles in general, and the sign needs to specify this. For instance, there might be special through or left-turn phases for bicyclists in a separated on-street bikeway or off-road bike path. But bicyclists on the roadway would still make these maneuvers according to the standard vehicular signal indications. Any other interpretation leads to conflicts and chaos.

¶624 creates a new Section 9E.02, Bicycle Lanes at Intersection Approaches. This incorporates existing, accurate support that a “bicyclist continuing straight through an intersection from the right of a right-turn lane or from the left of a left-turn lane would be inconsistent with normal traffic behavior and would violate the expectations of right- or left-turning motorists.” This important observation needs to be applied more widely.

The new section permits this configuration if the bicycle movement is controlled by a separate bicycle signal. This is fine as far as it goes, but it doesn’t go far enough. The same conflict exists at a dual-destination through-right vehicular lane. With conventional on-street bike lanes, a mixing area approaching the intersection gives through bicyclists an opportunity to move left and right-turning motorists an opportunity to move right. This option is not available at a separated facility, unless the separation is dropped in advance to provide a mixing zone. Separate signal phases must therefore also be provided at separated facilities even if the adjacent right turn is only optional, unless there is a mixing zone.

Although the new section does refer to separated bikeways and to mixing zones, the discussion is insufficient to establish these principles.

¶628 and Section 9E.06, Buffer-Separated Bicycle Lanes, suffer from the lack of legal clarity over whether or in what circumstances motorists and bicyclists may cross or travel within a buffer space. Until this is established, it remains difficult to define how buffers should be striped approaching an area where one party or the other needs to move laterally on the roadway.

¶629 proposes a new Section 9E.07, Separated Bicycle Lanes. The proposed language observes that “Physical separation between general purpose lanes and bicycle lanes introduces additional design considerations over buffer-separated bicycle lanes, including the awareness of a potentially unexpected conflict point for turning vehicles and the provision of adequate sight distance for all users at intersections and driveway crossings” and that “The presence of two-way separated bicycle lanes on one side of a roadway or in a center median introduces additional challenges and conflict points.” While decidedly true, these statements vastly understate the difficulties with such facilities, and a cross-reference to the AASHTO “Guide for Development of Bicycle Facilities” is insufficient to address whatever conflicts can be ameliorated by traffic controls. These issues need to be laid out in much greater detail and the challenge of addressing them,

which may not always be possible, recognized. But even this comparatively weak acknowledgment is enough to show the inadvisability of ¶459's blanket promotion of such facilities.

The statement that "Conflicting traffic at signalized intersections should be prohibited by signal indications to cross a one-way separated bicycle lane with the same direction of travel as the adjacent general purpose lane when bicycle traffic is allowed to proceed through the intersection" is given merely as Guidance. This must be a Standard, as "Right turns on red shall be prohibited across separated bicycle lanes while bicycle traffic is allowed to proceed through the intersection" already is.

Furthermore, though it's already FHWA practice, it is potentially misleading to refer to these facilities as separated bike *lanes* rather than *bikeways*. In California, both the Streets and Highways Code and Highway Design Manual distinguish these two types of facilities, and the Vehicle Code treats them differently: bicyclists are required to use bicycle lanes (with exceptions), but not separated bikeways. Thus the BIKE LANE (R3-7) signing suggested as Guidance would take on inappropriate regulatory meaning in California.

¶634 proposes a new Section 9E.12, Bicycle Box. Except where the approach to a bicycle box runs between a through lane and a right-turn-only lane, the fundamental drawback of bicycle boxes is that they encourage through bicyclists to pass potentially right-turning traffic stopped at a red indication in order to reach the box. If the signal turns green during this approach, the bicyclist may be trapped in a far-right position.

The proposed Guidance is therefore apt (though what does "discernible" mean?):

"At intersections where a discernible number of conflicts between vehicles turning across through bicycles in a bicycle lane has been demonstrated during the green interval of a signal, the bicycle box should not be used.

"Other treatments should be considered for conflicts between turning vehicles and through bicycles such as using leading or exclusive signal phases, or separating turning traffic from through traffic through exclusive turn lanes."

Note, however, that even where such conflicts have not been frequent, the addition of the bicycle box may promote them, because its design prevents traffic waiting on red, or turning on green, from merging properly toward the curb in preparation to turn right. At least it's possible to deal with the red indication: it is desirable, as proposed, that "Turns on red shall be prohibited from the lane where a bicycle box is placed."