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May 14, 2021

Federal Highway Administration
US Department of Transportation
1200 New Jersey Ave SE
Washington, DC 20590

RE: Docket No. FHWA-2020-0001
National Standards for Traffic Control Devices:
Manual on Uniform Traffic Control Devices for Streets and Highways; Revision

Dear Secretary Buttigieg and Acting Administrator Pollack,

I am a licensed Professional Engineer (NY) who was employed by road-building agencies for 20 years.

The *Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD)* requires major changes and the rulemaking process appears tainted by favoritism.

Accordingly the Federal Highway Administration (FHWA) should:

1. Terminate this rule making.
2. Continue using the current (2009) version of the *MUTCD*.
3. Begin rewriting the *MUTCD* from scratch, this time taking into consideration the many issues raised in the 6,649+ docket comments received so far.

My objections to the Notice of Proposed Amendments (NPA) are as follows.

I. Potential Loss of the Immunity Provided by the MUTCD

The MUTCD is currently a generally accepted engineering standard.

Ensuring the MUTCD remains a generally accepted engineering standard must be a priority. Under a state tort claims act or at common law, “*A transportation department typically has immunity for the initial design of a public improvement, particularly when the design complies with generally accepted or approved engineering or design standards.*”¹

In the past, FHWA’s approval of a new MUTCD ensured that the immunity continued for another 20+ years. The immunity would first be in place for the 10+ years while the new version was in use. It then continued for another 10 year long period in which traffic control devices were allowed to be brought into compliance with the subsequent update of the MUTCD.

Times have changed. Approving this NPA will not ensure that the MUTCD remains a generally accepted engineering standard. Many comments in the docket are from organizations and professionals who already do not view the proposed update as an acceptable engineering standard.

Advocates opposed to the update might also seek relief in the courts and/or thru the legislative process if the NPA is approved. I remind FHWA that advocates angered by FHWA pushed for legislation that in 1998 eliminated FHWA’s Regional Offices² and in 1999 required the Federal Motor Carrier Safety Administration³ to be carved out of FHWA.

1 Page 12, *Legal Research Digest 74, Liability of State Departments of Transportation for Design Errors*.
<https://www.nap.edu/download/24681>

2 Elimination of Regional Office Responsibilities Pub. L. 105–178, title I, §1220, June 9, 1998, 112 Stat. 221

3 <https://www.fmcsa.dot.gov/faq/what-federal-motor-carrier-safety-administration>

To preserve the immunity that transportation departments enjoy, FHWA should terminate the rule making process. FHWA must write a completely new publication that addresses all the concerns raised during this comment period and then start the rule making process anew.

II. New Definitions of “Target Road Users”

Section 1A.03 includes this new definition:

There are two groups of target road users for traffic control devices:

A. Operators of vehicles, including bicyclists -- This target user is a reasonable and prudent individual who is alert and attentive, has demonstrated a basic proficiency in operating a vehicle on a specific facility, has demonstrated a basic understanding of traffic control devices and traffic laws, and is operating in a lawful manner that is appropriate for the facility and conditions, while demonstrating due care for the current conditions on the roadway.

This new definition is incompatible with common highway engineering practices that target unlawful, impaired, fatigued, drowsy and inattentive operators. Some examples:

1. Unlawful Operators: All-Red Clearance Intervals at traffic signals reduce the likelihood that drivers operating unlawfully will harm others.
2. Impaired Operators: FHWA and state transportation departments have funded much research on how best to position and size “Wrong Way” signs. Their intent was to reduce the number of wrong-way driving crashes, the majority of which are caused by impaired operators.
3. Fatigued, Drowsy, and Inattentive Operators: Rumble strips installed on the yellow center and white edge lines reduce roadway departure crashes caused by driver inattention and fatigue.

The new Section 1A.03 also says:

B. Pedestrians – This target user is an alert and attentive individual who is functioning in a lawful manner that is appropriate for the facility and conditions,

while demonstrating due care for the current conditions on the roadway. Pedestrians with disabilities might be blind or vision-impaired, have mobility limitations, or other impairments.

This definition appears to be a violation of the *Americans with Disabilities Act*. Pedestrians with disabilities may have impairments that prevent them from being alert and attentive.

The inclusion of these new definitions should be enough to terminate the rule making process since USDOT has the responsibility of enforcing the *ADA* on the transportation system.

III. Mischaracterization of 85% Percentile Speed as a Single Number

Section 1C.02 of the draft defines *85th Percentile Speed* as:

85th-Percentile Speed — the speed at or below which 85 percent of the motor vehicles travel.

This definition and how the term is used throughout the draft imply that the *85th Percentile Speed* is a single number that remains constant along the road. That is no longer correct. FHWA itself has done a lot of great work showing how the *85th Percentile Speed* varies along a roadway.

The earliest documentation of FHWA's work that I am aware of is an article in the September/October 1997 issue of FHWA's *Public Roads* magazine. In it, the late Ray Krammes wrote:

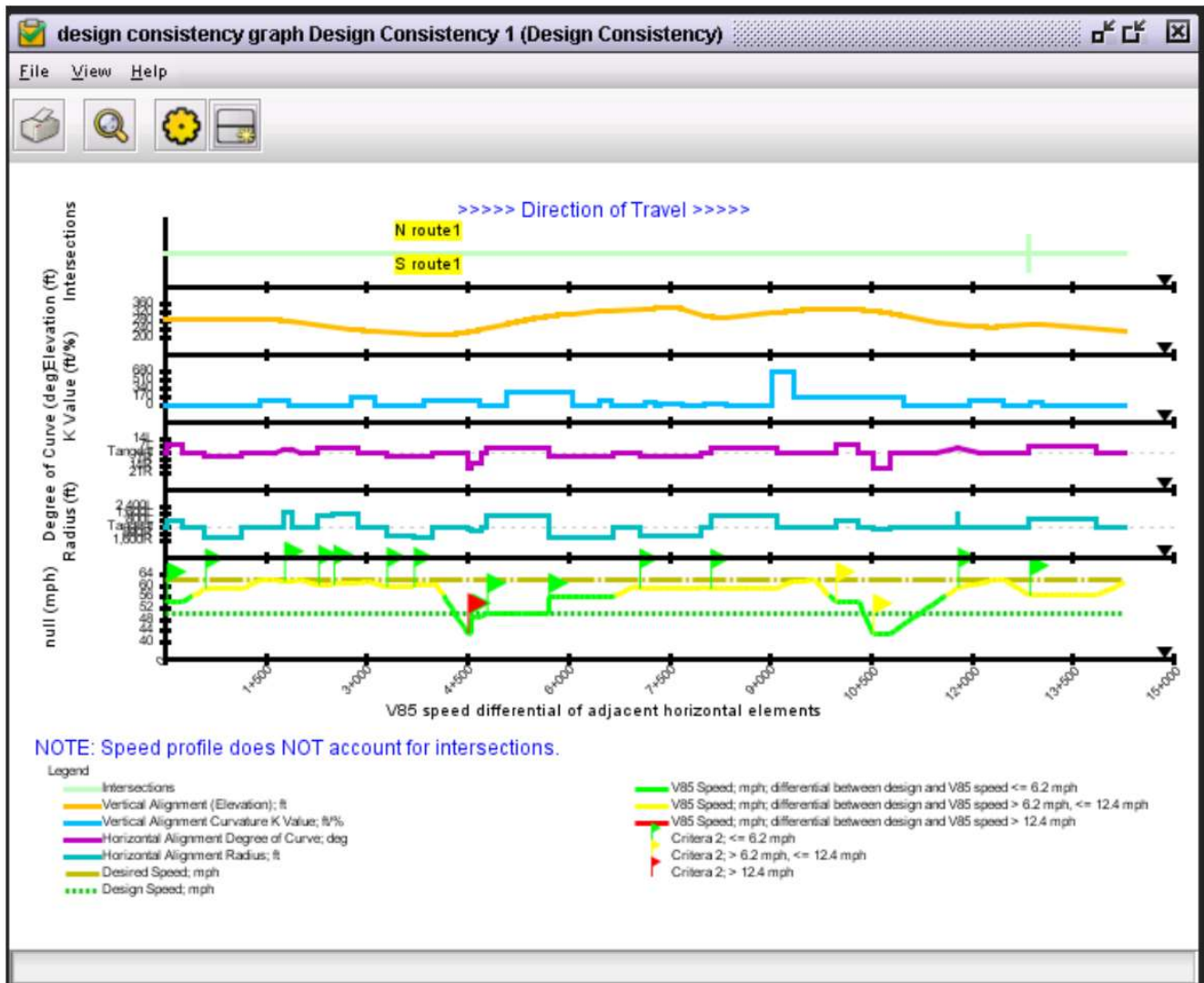
Since most drivers travel as fast as they feel comfortable and slow down only where necessary, rural highways with lower design speeds exhibit uneven operating speed profiles. That is, drivers accelerate to their desired speed on tangents and gentle curves and decelerate only on sharper curves.⁴

FHWA has developed several speed profile models. The earliest published model that I am aware of is *FHWA Publication Number 99-171, Speed Prediction for Two-Lane Rural Highways*⁵, published in August 2000.

4 <https://highways.dot.gov/public-roads/septoct-1997/interactive-highway-safety-design-model-design-consistency-module>

5 <https://www.fhwa.dot.gov/publications/research/safety/ihsdm/99171/99171.pdf>

FHWA has also incorporated its speed profile models into the Interactive Highway Safety Design Model (IHSDM⁶) software. The IHSDM includes a module that produces graphs showing how the *85% Percentile Speed* varies along the road. An illustration from the IHSDM Tutorial⁷:



My experience using IHSDM to analyze actual road alignment plans was that the *85% Percentile Speed* could vary by as much as 20 mph along the road segment I was analyzing.

⁶ <https://www.ihsdm.org/>

⁷ http://www.ihsdm.org/public/Tutorial/Tutorial_Lesson_5_DCM.pdf

FHWA's great work on speed profile models and the IHSDM conflict with the Guidance that FHWA proposes in Section 2B.21 of the draft:

Except in urbanized locations within rural regions, when a speed limit within a speed zone is posted on a rural highway, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic vehicles.

This mischaracterization is a real problem for the NPA because the draft uses the *85% Percentile Speed* as a factor in determining:

- Sign Spacing
- All Way Stop Control
- Speed Zones
- Speed Limits
- Horizontal Alignment Signs and Plaques;
- No-Passing Zone Pavement Markings
- Lane Reduction Transitions
- Crosswalk Markings
- Traffic Control Signal Warrants
- Number of Traffic Signal Faces
- Positioning of Traffic Signal Faces
- Pedestrian Hybrid Beacons
- Emergency-Vehicle Traffic Control Signals
- Emergency-Vehicle Hybrid Beacons
- Intersection Control Beacons
- Temporary Traffic Control

The mischaracterization should be enough to terminate the rule making process.

IV. Unnecessary Inclusion of an Automated Vehicles Chapter

There is no need for the proposed *Chapter 5 - Automated Vehicles*; the entire chapter should be deleted. Automated Vehicles are not even mentioned in the "Target Road Users" definition included in Section 1A.03.

The only Guidance in the entire proposed Chapter 5 that might be viewed as being unique to automated vehicles is the recommendation about LED refresh rates:

The illuminated portion of electronic-display signs using LEDs should have a standard refresh/flicker 17 rate. The refresh rate of the LEDs should be greater than 200 Hz to be easier for the camera to detect

and

The refresh rate of the LED traffic signals should be consistent throughout the jurisdiction and be 9 greater than 200 Hz to allow greater consistency in machine vision detection.

However, these two statements would also serve human drivers since they would help ensure that electronic display signs and traffic signals will appear on dashcam footage. The two statements can be moved to the Signs & Highway Traffic Signals chapters and the rest of Chapter 5 deleted.

V. Prohibition Against Considering Local Land Use and Municipal Zoning

The NPA would continue the MUTCD's prohibition against considering local land use decisions and municipal zoning. This causes considerable harm to cities and localities.

There is a textbook example in the City of Atlanta, Georgia. In 2001, Atlanta's City Council created the Lindbergh Transit Station Area Special Public Interest District⁸. The district encompasses the Lindbergh Transit Station, which serves two MARTA subway lines and numerous transit bus routes. The City's municipal code describes the intent behind the district:

Lindbergh Transit Station Area

Sec. 16-18O.002. - Statement of intent.

The intent of the council in establishing SPI-15 Lindbergh Transit Station Area Special Public Interest District as a zoning district is as follows: 1. Create a diversified urban environment where people can live, work, meet and recreate; 2. Enhance and protect the Lindbergh Transit Station area as a model for retrofitting an existing automobile-oriented commercial strip into a transit and pedestrian oriented mixed-use and multi-family urban neighborhood; 3. Improve the visual aesthetics of the streets and the area; 4. Provide for a pedestrian-oriented environment on streets and sidewalks;

⁸ <http://reconnectingamerica.org/assets/Uploads/bestpractice207.pdf>

*5. Maximize access to transit; 6. Encourage use of transit infrastructure; 7. Encourage a compatible mixture of residential, commercial, and cultural and recreational uses; 8. Provide parking in an unobtrusive manner; 9. Reduce parking requirements by encouraging shared parking and alternative modes of transportation; 10. Encourage a sense of activity and liveliness along the street level of building façades; 11. Encourage a grid of connected streets to improve access and reduce congestion; 12. Provide sufficient, safe and accessible open space for active and passive enjoyment by residents and workers; 13. Facilitate safe and convenient pedestrian and bicycle circulation and minimize conflict between pedestrians and vehicles; and 14. Reduce vehicular congestion by encouraging a smooth uninterrupted flow of traffic.*⁹

Piedmont Road, aka Georgia State Route 237, bisects the Lindbergh Transit Station Area Special Public Interest District. When setting a Speed Zone and Speed Limit for Piedmont Road, the MUTCD prohibits the transportation department from acknowledging the existence of the nearby Transit Station and the Special Public District that the road bisects. Instead, the transportation department must follow the faulty standard prescribed by Section 2B.21:

Standard:

Speed zones (other than statutory speed limits e.g, established by Federal or state law) shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices.

Guidance:

Among the factors that should be considered when establishing or reevaluating speed limits within speed zones are the following:

- A. Speed distribution of free-flowing vehicles (such as current 85th percentile; the pace; review of past speed studies)*
- B. Reported crash experience for at least a 12-month period*
- C. Road characteristics (such as lane widths; shoulder condition; grade; alignment; median type; sight distance)*
- D. Road context (such as roadside development and environment (number of driveways, land use); functional classification; parking practices; pedestrian activity; bicycle activity).*

Piedmont Road is a seven lane wide highway design so following the MUTCD's Standard results in a 40 MPH Posted Speed Limit. This 40 MPH Speed Zone is thru a district that is

⁹ https://library.municode.com/ga/atlanta/codes/code_of_ordinances?nodeId=PTIICOORANDECO_PT16ZO_CH18OSP15LITRSTARSPPUINDIRE_S16-18O.002STIN

intended to “*Provide for a pedestrian-oriented environment on streets and sidewalks.*” A statistic from FHWA’s *Signalized Intersections Informational Guide: Second Edition*:

Speed plays a major role in motorist-pedestrian collisions, particularly fatalities; a pedestrian struck at 40 mph has an 85 percent chance of being killed, at 30 mph the probability of fatality is 45 percent, and at 20 mph the probability of fatality drops to 5 percent.^{10 11}

Numerous pedestrians have been killed crossing Piedmont Road in the two decades since the City Council decided the district would be “pedestrian-oriented environment on streets and sidewalks.” The *Buckhead Reporter* newspaper described a July 11, 2017 pedestrian fatality involving an essential worker:

*Baraka Sentmore died after being hit by car while standing on a pedestrian island at the intersection of Piedmont Road and Morosgo Drive on July 11. She left behind four children....Sentmore was killed after being hit by a car after it collided with another car. She was walking to work at the Kroger grocery store at the intersection*¹².

Secretary Buttigeig, the Lindbergh Transit Station is short, 28-minute long MARTA subway ride from the Atlanta airport. On your next visit to Atlanta you should visit the Lindbergh district and experience the problems yourself. Try walking from the station to the nearby Zesto’s Restaurant, a local institution, and try their Peach Milkshake.

VII. Appearance of Favoritism and/or Impropriety During Rule Making

The docket includes multiple comments urging rule approval from individuals who may be employed by firms that are current FHWA contract holders.¹³

The docket also includes multiple comments urging rule approval from members of the Institute of Transportation Engineers (ITE) as well as a May 5, 2021 letter from ITE itself.

10 Publication No. FHWA-SA-13-027 *Signalized Intersections Informational Guide: Second Edition*
<https://safety.fhwa.dot.gov/intersection/signal/fhwas13027.pdf>

11 Leaf, W.A., and D.F. Preusser. Literature Review on Vehicle Travel Speeds and Pedestrian Injuries. Report No. DOT-HS-809-021. Washington, DC: USDOT, October 1999

12 <https://reporternewspapers.net/2017/08/18/group-pushes-crosswalk-fixes-buckhead-pedestrian-death/>

13 <https://highways.dot.gov/federal-lands/business/ae-services/contract-holders>

ITE publicized the letter on its official twitter account¹⁴. In the final paragraph of the letter ITE wrote:

As we stated in earlier correspondence, ITE strongly encourages FHWA to stay the course on this rulemaking action and finalize and issue an updated MUTCD as soon as possible, rather than pull back the NPA in order to perform a major overhaul of the content of the MUTCD.

The earlier correspondence does not appear to be part of the docket available to the public. Per a quick Google search, ITE holds single source contracts with both the USDOT¹⁵ and the FHWA¹⁶. In 2018¹⁷, 2019¹⁸, 2020¹⁹ and 2021²⁰, FHWA published notices that stated it intended to negotiate single source contracts with ITE to provide yearly corporate memberships to FHWA. The March 25, 2021 notice – published while the NPA was open for public comment – said:

Pursuant to 13.106-1(b)(1)(i), the Federal Highway Administration (FHWA) intends to solicit from a single source, the Institute of Transportation Engineers, Inc. (ITE), to provide a one year corporate membership to FHWA. The FHWA requirement is for resources from ITE including, providing professional development services, exposure to specialized training within the field of transportation engineering, current and updated technical resources, and relevant educational activities for FHWA's employees. The ITE membership provides FHWA's members unlimited access to the resources needed to ensure FHWA's employees can continue to stay engaged within transportation engineering. The membership includes: identifying necessary research, developing technical resources, including standards and recommended practices, developing public awareness programs and serves as a conduit for the exchange of professional information.

14 <https://twitter.com/ITEhq/status/1389951013621092358>

15 [https://www.instantmarkets.com/view/ID310624075274619827222115250268622137757/Intelligent Transportation System ITS ePrimer](https://www.instantmarkets.com/view/ID310624075274619827222115250268622137757/Intelligent%20Transportation%20System%20ITS%20ePrimer)

16 [https://www.instantmarkets.com/view/ID337205698398185164917944811338055006309/Institute of Transportation Engineers Learning Hub Courses](https://www.instantmarkets.com/view/ID337205698398185164917944811338055006309/Institute%20of%20Transportation%20Engineers%20Learning%20Hub%20Courses)

17 [https://www.instantmarkets.com/view/ID47691574839190275622495862144524119074/Institute of Transportation Engineers Agency Membership](https://www.instantmarkets.com/view/ID47691574839190275622495862144524119074/Institute%20of%20Transportation%20Engineers%20Agency%20Membership)

18 [https://www.instantmarkets.com/view/ID32124292155729595196565086585111349922/Institute of Transportation Engineers 2019 FHWA Memberships](https://www.instantmarkets.com/view/ID32124292155729595196565086585111349922/Institute%20of%20Transportation%20Engineers%202019%20FHWA%20Memberships)

19 [https://www.instantmarkets.com/view/ID31139968716896777434171064194584490041/ITE Membership](https://www.instantmarkets.com/view/ID31139968716896777434171064194584490041/ITE%20Membership)

20 [https://www.instantmarkets.com/view/ID84775592919996732672667751387707134123/FHWA Membership to Institute of Transportation Engineers Inc](https://www.instantmarkets.com/view/ID84775592919996732672667751387707134123/FHWA%20Membership%20to%20Institute%20of%20Transportation%20Engineers%20Inc)

ITE is a fine organization. However, these sole-source contracts and the sole source justifications required by federal procurement law give the appearance that ITE receives preferential treatment from FHWA. Organizations and advocates opposed to the rule might cite these sole source contracts and justifications as evidence that FHWA is incapable of giving full and fair consideration to those who oppose the rule.

Thank you for your consideration.

Sincerely,

Christopher Webster