Comment on proposed speed limit changes in 11^{th} edition MUTCD

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Summary

The MUTCD currently requires speed zoning to consider operating speed and recommends use of the 85^{th} percentile rule on all roads. The Notice of Proposed Rulemaking asks whether the 85^{th} percentile rule for speed zoning should be only for rural roads only or banned everywhere.[1] Either option would be a remarkable, unjustified, and inadequately explained change overturning decades of evidence-based rulemaking. Either would be detrimental to safety, uniformity, and equity, while encouraging unjustified speed traps. Also troublesome is the proposal to move what little guidance remains to a web page which can be changed without notice and comment.

Introduction and History

Essentially, FHWA proposes to abolish the 80 year old 85^{th} percentile rule. The requirement to measure traffic speed would be removed for all roads and the 85^{th} percentile speed (if known) given no particular importance outside of rural areas.

This change does not follow FHWA's own process. The proponent of a change should include

> A detailed research and evaluation plan that provides for close monitoring of the experimentation, throughout all stages of its field implementation. The evaluation plan shall include before and after studies as well as quantitative data describing the performance of the experimental device.[2]

The current MUTCD is based on such a study. Parker (1997) showed that speed limit reductions below the 85^{th} percentile were not justified. Speed limit signs had

[1] 85 FR 80909 item 67

[2] MUTCD 11^{th} edition (proposed) section 1B.06

negligible effect on traffic speed and reducing speed limits below the 85^{th} percentile speed did not improve safety. In the Millennium MUTCD FHWA made the 85^{th} percentile rule the primary method of speed zoning.

The 2003 MUTCD followed the demonstration program in "Setting and Enforcing Rational Speed Limits."[3] Participating jurisdictions set speed limits based on the 85^{th} percentile rule. FHWA did not find any reason to substantially change speed zoning standards.

The 2009 MUTCD had the further benefit of the literature survey done for USLIMITS2 (Srinivasan et al. (2006)). The report on USLIMITS2 notes "There is consensus that operating speed is a critical factor in determining an appropriate speed limit for a speed zone." Parker (1997) was acknowledged as the leading study on the effects of speed zoning. Some authors reported that raising speed limits could slightly increase travel speed on freeways (Parker had examined conventional roads), although Lave and Elias (1994, 1997) pointed out there was an overall increase in safety due to traffic diversion. There was no strong evidence to contradict the older reports by Solomon (1964) and Cirillo (1968) which found that driving with the flow of traffic was safest, only some doubt about exactly which percentile was safest. And so FHWA added the unconditional requirement to measure the speed distribution of free-flowing vehicles.[4]

FHWA states that its proposed new rule is in response to the NTSB's report on speed (NTSB/SS-17/01). There is nothing new in the NTSB report except the observation that slogans like "Vision Zero" are replacing evidence-based policies. It is the job of FHWA and the engineering profession to follow the evidence. The last three editions of the MUTCD follow the evidence. The proposed 11^{th} edition follows the slogans.

The NTSB Report

Dubious statistics

The NTSB leads off by noting that many motor vehicle crashes are blamed on one or the other of two distinct factors, "exceeding a speed limit" and "driving too fast for conditions." Combining these makes it more difficult to improve road safety. The offense of making the number on a radar gun exceed the number on a roadside sign is much different from the offense of driving beyond the critical speed of a curve on wet pavement. The countermeasures are different.

If the goal is simply to eliminate the "exceeding a speed limit" category the most reliable method is to abolish speed limits. Then the statistic would be 0%. If one doubts that abolishing speed limits is a desirable solution one should also doubt the validity of the "exceeding speed limit" factor altogether. Unlike "too fast for conditions" this category is mostly worthless.

[3] 66 FR 29855 (June 1, 2001)
[4] 73 FR 267 (January 2, 2008) item 59 on p. 276

Mostly worthless, but not entirely uninformative. The fraction of crashes involving speeding vehicles appears to be much less than the fraction of vehicles that is speeding, which is typically 50% or more (e.g. Srinivasan et al., 2006, p. 20) Apparently you are less likely to crash if you are speeding. This is what we expect from the Solomon curve. When speed limits are very low you are safer above the speed limit.

The misleading effect of aggregation is compounded by the pressure to blame speed even when speed was not the cause. Thus Connecticut's FY 2017 Highway Safety Plan (p. 88) lists 7.9% of injury crashes with "speed too fast for conditions" as a contributing factor with the footnote

> NHTSA identifies speed as a factor in addition to other causes, resulting in a higher percentage of speed as a contributing factor in crashes. The DOT . . . categorizes "speed too fast for conditions" separately, resulting in a lower percentage of crashes with speed as a factor.

States are expected to inflate the true number of speed-related crashes in order to receive enforcement grants. Another bias in reporting is visible in the table on page 10 of the NTSB report. If two vehicles crashed at the same speed and only one crash resulted in a severe injury, the injury crash was twice as likely to be called "speeding-related."

"Speeding-related" is better described in the negative: If speed is not listed as a contributing factor, the investigators did not think anybody should have been driving more slowly. A large majority of accidents could not be prevented with speed limit or speed enforcement changes.

Confounding factors

The evidence also fails to distinguish cause and effect.

Zhao et al. (2013) found that forcing habitual cell phone users to hang up and drive did not make them safe drivers. Being a bad driver makes one more likely to talk on the phone, not the reverse. There is some evidence for such an effect with speed. Fildes et al. (1991) observed that those who drove faster in one place had more accidents in other places. It may not be realistic to expect young male drivers to develop good judgment as a result of being slowed down.

If a driver has a few beers and crashes while speeding, that is both "speeding-related" and "alcohol-related." About half of all "speeding-related" crashes involve alcohol (e.g., NTSB report p. 15). It is hard to see how drunk drivers would be rendered safe by changing numbers on signs, which is all the Federal Highway Administration is proposing to do.

Nothing new here

The NTSB claims that having blamed some prior crashes on speed it is now in a position to opine on speed in general. But FHWA was in the business long before NTSB crashed the party, and its earlier conclusions were correct. FHWA had the benefit of most of the cited literature when it developed previous versions of the MUTCD. FHWA also had the benefit of literature that that the NTSB chose to ignore, most importantly Parker (1997). There is additional literature that neither the NTSB nor FHWA has considered, like the report that even point-to-point speed cameras were not effective at reducing injuries in work zones (Freeman et al., 2004, p. 43). These cameras measure average speed and so can not be defeated by momentarily slowing down.

The substantive comments related to speed zoning begin around page 24. There are three relevant sections — "unintended consequences of using the 85th percentile speed,", "expert system," and "vulnerable road users on urban roads" — each based on a misconception.

The mythical speed cycle

In section 3.1.3 the NTSB repeats a myth: "Using the 85^{th} percentile speed to set speed limits on road segments may have unintended consequences. Raising the speed limit to match the 85^{th} percentile speed may lead to higher operating speeds, and hence a higher 85^{th} percentile speed. This generates an undesirable cycle of speed escalation and reduced safety (Donnell and others 2009)."

NTSB misrepresents the reference. Donnell et al. (2009, p. 30) write "There is a concern that raising the speed limit, as shown in figure 17, will lead to even higher operating speeds and thus contribute to a cycle of speed escalation and reduced levels of safety." Contrary to the NTSB's confident statement "this generates an undesirable cycle," no evidence is offered that this cycle exists. The authors do not express an opinion that it exists. They note that unidentified people have expressed concern.

Speed cycle on conventional roads

Parker (1997) showed definitively in a controlled study that the cycle does not exist on urban, suburban, and rural conventional roads. The NTSB chose to ignore this important and well-known study on exactly the point in question. This study also shows why FHWA is mistaken in thinking that the 85^{th} percentile rule is better for rural roads and freeways than for urban roads. Parker studied urban roads too. The freeway system did not even exist when the 85^{th} percentile rule started to be used.

There are countless examples of speeds not responding to speed limit changes. Some older studies were collected by Parker (tables 22 and 23). See Lambert (2020) for recent data from New Hampshire (35 mph speed limits do not prevent traffic from going 50+.)

Speed cycle on freeways

It is sometimes reported that freeway speeds rose after the repeal of the National Maximum Speed Limit (NMSL) in 1995. The "before" measurements may have been artificially depressed by the need to report high speed limit compliance rates to receive federal funds. [5] FHWA allowed states to reduce reported speeds by 5 mph, supposedly to compensate for measurement error. On top of that, reported speeds could be depressed by visible enforcement or careful selection of measurement sites.

Fortunately we do not need to retread that bit of history. FHWA had all the evidence on NMSL-related speed changes when it created the 2000, 2003, and 2009 MUTCDs, including the findings of Lave and Elias (1994, 1997) that "the fatality rate dropped by 3.49%-5.1% following the speed limit increase." (Both references also ignored by the NTSB.) What have we learned in the past decade?

The NTSB cites Hu (2017b), an IIHS report on Utah where the speed limit was raised from 75 to 80. No strong conclusion can be drawn from the report. Traffic speed declined when the speed limit was raised. The IIHS kept monitoring speed until they found an increase to report. The NTSB apparently credits Hu's speculation that the initial decline in speed was due to unrelated economic effects. If economic effects are stronger than speed limit signs, why are we worrying about signs?

And why can economic effects not explain the suggested "spillover effect" of Casey and Lund (1992) which the NTSB would rather blame on speed limit changes a hundred miles away? Hauer (2009, p. 11) is also dubious of spillover: "At present not enough is known about the spillover and adaptation phenomena to allow one to predict the size and extent of the effect." On this subject the NTSB offers fear, uncertainty, and doubt, not predictions.

The IIHS did not report any increase in crashes in Utah. There was only an assertion that their model predicted crashes without a cost-benefit analysis of their prediction. Per NHTSA figures (Blincoe et al., 2015, p. 103) reduced travel time on a rural Interstate is worth $26 per vehicle-hour.

Jin and Rafferty (2021) reported raising speed limits on Wisconsin freeways increased travel speed by one third of the amount of the increase. If speed increases by a third of the speed limit change obviously the "cycle" will quickly reach an end point.

In fact, we already know the end point. Before 1974 many roads had no speed limits. Statutory speed limits, when they existed, tended to to be far above traffic speed. When Connecticut enacted a 70 mph speed limit in 1963 the prevailing speed was closer to 60.[6] In this era speed surveys were based on drivers who were not afraid of tickets. When Montana repealed rural speed limits the 85^{th} percentile speed rose to 80 over four years and remained at 80 even after a 75 mph speed limit was imposed (Hauer, 2009, p. 11). On unrestricted sections of the Autobahn in northern Germany Thiedig (2018) reported 85^{th} percentile speeds around 84 mph.

[5] See Pub. L. 97–35 §1180 (95 Stat. 626, 1981) and former 23 CFR Part 1260, both repealed in the 1990s.

[6] See *State v. Sivin*, 4 Conn. Cir. Ct. 93, 225 A.2d 846 (1966), about a speeding ticket in a 60 mph speed zone where the statutory speed limit was 70.

The natural flow of traffic on high quality freeways in America lies in a fairly narrow range, with average speed typically in the low 70s and the 85^{th} percentile sometimes rising to the low 80s. US Route 3 in Massachusetts has a 55 mph speed limit and an 85^{th} percentile speed in the high 70s[7], nearly the same as I–80 in Nevada when it was posted 75 (Wooster (2016)).

The 85^{th} percentile rule is supposed to be based on free-flowing traffic. Using speed traps to artificially depress measured speeds should be condemned, not tacitly approved.

Expert system

NTSB report section 3.1.4 supports using an expert system such as USLIMITS2. It is puzzling that the NTSB mentioned USLIMITS2 because that tool does not follow the recommendation that speed limits be decoupled from operating speed.

While there is nothing inherently wrong with using computer assistance, USLIMITS2 is not a good candidate. It was developed to produce politically palatable speed limits.

The creators of USLIMITS2 asked a panel of "persons engaged in setting, enforcing, or adjudicating speed limits" to review the program's output. Suppose the computer said the speed limit on a street should be 40 mph. They asked a police officer, "would you be willing to write tickets in a 40 zone?" They asked a traffic court judge, "would you convict somebody of speeding in a 40 zone?" They asked a city councilor, "would 40 mph be acceptable to you?" They added common excuses for lowering speed limits until those representatives of the ticketing industry were happy. The experts then pushed back by saying a speed limit shouldn't be more than 10 mph below what road safety would require. In many cases that is low enough to be politically acceptable.

USLIMITS2 says a speed limit can be reduced based on perceived roadside hazards even if crash data says those hazards are not actually hazardous.

And then there are the arbitrary limits which seemed to have been pulled out of a hat: 75 mph on freeways (which would make Idaho, South Dakota, Texas, Utah, and Wyoming noncompliant), 65 mph on other roads (*contra* Nebraska, North Dakota, and Oregon), and 50 mph on roads with roadside development (violated from California to Massachusetts).

All this was public relations, not science. There is no evidence that the low speed limit recommendations of USLIMITS2 improve safety. They certainly breed disrespect for the law.

If FHWA does propose an expert system it should be developed following the formal experiment process and revised based on field tests and cost-benefit analysis, not an opinion poll. Evaluation criteria should be predefined and measurement outsourced. Unsupervised reports on effectiveness of speed enforcement are known to be

[7] I measured 85^{th} percentile speed around 78 mph. A Road Safety Audit (MS Transportation Systems) reported 76. Note that the RSA specifically called out the unreasonably low speed limit as a possible cause of crashes. Massachusetts State Police convinced the governor not to allow a speed limit increase.

unreliable. Gill et al. (2006) found that police in England underreported injuries by a third in an apparent attempt to make speed enforcement look beneficial.
Winnipeg Audit Department (2006, p. 25) discovered that city officials falsely claimed automated enforcement had improved safety.

Vulnerable road users

Section 3.1.5 of the NTSB report is titled "Vulnerable road users on urban roads." The NTSB cherry-picks statistics about pedestrian fatality rates. For contrary statistics see Florida data in Leaf and Preusser (1999). Whatever the merits of the widely-quoted Pasanen model in Finland, it overestimates deaths in Florida where high speed pedestrian-involved crashes are more common and well-documented. It is fair to expect that a higher collision speed is more likely to cause injury on average, but there is no speed that is incapable of causing injury. Injuries are a combination of pedestrian behavior, driver behavior, vehicle type, and speed at impact (which is different from average speed or the speed limit).

The fallacy of the predestined hit

Quoting the "X% of pedestrians are killed at Y mph" statistics implicitly assumes that pedestrians are hit at a constant rate. This is the fallacy of the predestined hit.

> "What is the Fallacy of the Predestined Hit? It is a phrase suggested by Ken Nigro, a former Baltimore baseball writer, to reject the idea that a batter who gets a hit after a runner is out trying to steal a base would have got that hit if the runner hadn't been thrown out. Obviously, circumstances change with every development in an inning, and the hitter would not be guaranteed the same hit." (Chass, 1995)

Statistics are presented as if there is a quota of pedestrians to be hit and all we are changing is vehicle speed. In baseball, pitchers throw differently with men on base. On the road, drivers and pedestrians both behave differently when traffic speed changes.

Roberts et al. (1995) found some evidence that after controlling for other factors like traffic volume, traffic speed between 25 and 30 miles per hour resulted in more injuries to children than faster or slower traffic. Apparently slower moving traffic imparts a false sense of security. That is human factors rather than physics.

Who is hurt?

While many describe an epidemic of "speeders" mowing down pedestrians, table 2 on page 8 of the NTSB report shows this is wrong. So-called "vulnerable" road users are much *less* likely to be harmed in speeding-related accidents.

"Speeding-related" crashes affect mostly the drivers who were speeding. 63.9% of deaths and 62.3% of serious injuries involve the speeding driver.

Pedestrians and bicyclists combined make up less than 4% of speeding-related fatalities and less than 2% of speeding-related serious injuries. But pedestrians and bicyclists make up 15% of all traffic fatalities. About 6% of pedestrian deaths are speeding-related[8] compared to about 32% of motor vehicle occupant deaths.

In other words, the people most affected by speeding are the people who are speeding. The people least affected by speeding are pedestrians and bicyclists.

Beyond the power model

Much literature assumes that fatal crashes increase as approximately the fourth power of speed, the so-called "power model" of Nilsson. This is now known not to be the case in urban environments (Cameron and Elvik (2010)), as predicted by Srinivasan et al. (2006, p. 11) following earlier work by Elvik. There is a much weaker relationship between speed and safety.

If speeding and high speed drivers are not primarily responsible for pedestrian deaths, who is?

When Boston proposed reducing the speed limit from 30 to 25, I examined the most recent available fatality records to see how many pedestrian deaths could have been prevented by a lower speed limit. The answer was none. I found records of seven pedestrians and bicyclists killed on city-controlled streets in 2013.

Date	Limit	Road	Description
January 3	30	Palmer St.	car backed into pedestrian
May 9	25	Cambridge St.	child run over by van at "chaotic" intersection
May 19	30	Beacon St.	bicycle hit by heavy truck at signalized intersection
June 9	30	Stuart St.	pedestrian hit by light truck at signalized intersection
July 5	30	Centre St.	pedestrian hit by left-turning car
Sep. 5	30	Northampton St.	hit-and-run at intersection by driver not wearing glasses
November 25	30	Olney St.	on sidewalk; drunk driver convicted of manslaughter

Two impaired drivers, one backing, and four intersection accidents. None of these was correctable by lowering the city speed limit to 25. And all of them are typical of urban environments. [9]

Nevertheless, Boston reduced its speed limit. In 2018 the IIHS reported that the speed limit reduction did not reduce traffic speed.

Period	Mean	85^{th}	Over 25	Over 30
Before	24.8 mph	31.0 mph	47.9%	18.2%
After	24.8 mph	31.0 mph	46.9%	18.1%

[8] 314 pedestrians killed in "speeding-related" crashes in 2014 per NTSB, 4,884 total pedestrian fatalities in 2014 per NHTSA report DOT HS 812 270.

[9] Description "chaotic" taken from Ballou (2013). There were other deaths on state roads not subject to Boston's speed limit, e.g. on February 27 a man ran into traffic on a state parkway on a rainy night.

Somerville, Massachusetts is another "Vision Zero" city that reduced the speed limit allegedly for pedestrian safety. In the three years before the speed limit reduction, the only pedestrian fatality on a city-controlled street[10] was a woman run over at low speed by a turning truck (Davis Square, June 6, 2014). In the three years since, there was a hit-and-run in a crosswalk (Powder House Boulevard, February 8, 2019) and another woman run over at low speed by a turning truck (near Davis Square, November 3, 2020).

Deaths are generally not, as the IIHS would have us believe, the result of pedestrians standing in traffic waiting to be hit at a speed determined by the speed limit. Pedestrian fatalities tend to be caused by lack of situational awareness (by either party) and involve heavy vehicles or impaired drivers. The rise of the SUV has also been blamed (Gladwell (2004); Lawrence et al. (2018)).

Speed limit signs are not effective countermeasures to typical urban pedestrian deaths. FHWA should consider other potential treatments to reduce turning truck vs. pedestrian accidents. Hu and Cicchino (2020) describe the result of constraining the path of left turning vehicles in a manner similar to decreasing curb radius for right turn movements. The city of Boston wants to mandate side guards on large trucks, which is outside the scope of the MUTCD but deserves a cost-benefit analysis.

The Need for Uniformity

According to the NTSB getting hit at higher speed hurts more so we should slow down. How much? They don't say. One can not demand a speed limit which would render vehicles incapable of causing injury or death because there is no such speed. On June 16, 2016 in Lincoln, Massachusetts a bicyclist fell under the wheels of a stationary truck and was crushed when the truck started moving.

A speed zoning policy must be able to answer two questions: why is the speed limit not higher, and why is the speed limit not lower?

When the Mayor tells the DPW that the speed limit on a road should be 30, how is an engineer supposed to judge that statement? The 85^{th} percentile rule is simple and provides an answer. For all its flaws, USLIMITS2 can at least approximate an answer.

The 11^{th} edition MUTCD offers no useful advice. The city need not measure traffic speed. [11] What is left is a bunch of statistics and opinions with no way to put them together. What does it mean if the street is 32 feet wide and parking, pedestrians, and bicycles are all allowed? What if I told you it was a major collector? A minor arterial? With or without sidewalks? What is the coefficient of proportionality relating shoulder width to speed limit?

In Montana the engineer could reply "leave the 70 mile per hour statutory speed limit." In Massachusetts the engineer could reply "I think 5 miles per hour would be

[10]The majority of deaths in FARS in Somerville are on state roads like Mystic Avenue which are not subject to city speed limits.

[11]FHWA also asks whether the city should be prohibited from considering traffic speed (85 FR 80909).

better because you can't have too much safety." Neither is more or less correct. In all states the safe answer would be, "Yes, Ms. Mayor, of course your recommendation is absolutely perfect." I observed at NCUTCD meetings that engineers complained of being "beat up" when they tried to do the right thing and set speed limits based on real safety considerations. This explains why the NCUTCD advised FHWA to do the wrong thing by removing speed limit policy from the MUTCD.

FHWA wrote about the need for uniformity in speed signage:

> Fatalities at horizontal curves account for approximately 25 percent of all highway fatalities, yet horizontal curves are only a small portion of the Nation's highway mileage. The more rational and uniform posting of advisory speeds and the installation of the required additional horizontal alignment warning signs at existing locations will provide significant safety benefits to road users [12]

If FHWA believes the NTSB's statement that speed was a factor in 31% of fatalities, doesn't that make rationality and uniformity in speed limit signs even more important? But FHWA proposes to make speed limit signs less rational and less uniform.

Speed traps

A speed limit sign should "fulfill a need" and "command respect from road users" (MUTCD 11^{th} edition (proposed) section 1D.01). Allowing cities to abandon the 85^{th} percentile rule does not fulfill a need and the resulting speed limit signs will not be respected.

Almost everybody in America knows the term "speed trap." That refers to aggressive enforcement of a speed limit that is judged by the public to be too low. The 85^{th} percentile rule, faithfully followed, creates speed limits that the public considers reasonable. That does not mean everybody likes them. It means the public as a whole likes them. There will be complainers, but people sitting at a keyboard complaining about traffic speed have worse judgment than people sitting behind a wheel (e.g., Debnath et al. (2015)). Police will be encouraged to focus on the fastest drivers instead of looking for dark skin or out of state plates (e.g., Baumgartner et al. (2018)).

The incentives of city politics favor speed traps over safety. This is a decades-old problem but is especially problematic in Vision Zero cities.

Portland's Vision Zero program doubled the number of traffic deaths (Havrelly (2021)). Yet it continues. When pedestrian fatalities in Los Angeles increased after Vision Zero was declared a councilor said "We need to be doing more Vision Zero." (Nelson (2018)) In Boston, pedestrian deaths went up (Enwemeka (2017)). In Somerville, pedestrian deaths went up (see above). Bliss and Montgomery (2019) wrote, "Three of the [Vision Zero] cities, Chicago, Los Angeles, and Washington,

[12] 75 FR 74128 (November 30, 2010)

D.C., have seen fatalities rise or remain relatively flat. Two others, San Francisco and New York City, have made headway towards zero, but are seeing pedestrian and cyclist fatalities creep up more recently." Where deaths have dropped, changing road design is a more likely cause than speed limit sign changes (e.g. Hu (2017a)).

California cities are constantly trying to subvert the anti-speed trap law requiring speed limits based on the 85^{th} percentile rule. No matter how safe the road they make up excuses to subtract the maximum amount that would be allowed by law if the street were in fact dangerous. A Mountain View engineer wrote (Belluomini (2006)) "it is common practice in urban settings to establish speed limits below the critical speed by up to seven miles per hour." Los Angeles' 2017 speed limit review[13] claimed 75 of 76 streets surveyed were more dangerous than average.

The job of a typical municipal traffic engineer is to resolve complaints from residents and elected officials. Most of them are not safety researchers, have not read the safety literature, and do not investigate later to see if a new sign made traffic safer. They need clear guidance from the MUTCD when the boss asks them to do something wrong.

The MassDOT policy on speed zoning (MassDOT) begins "Speed regulation is, and always has been, a subject of both interest and controversy to almost everyone." People who wouldn't imagine dictating the placement and form of an advance warning sign feel free to offer uninformed opinions on speed limits. Yet FHWA proposes to have detailed rules for warning sign placement and none for setting speed limits in developed areas. If FHWA believes either that speed limits are important or that maintaining respect for signs is important, the MUTCD should keep the fundamental principle of speed zoning, the 85^{th} percentile rule.

Recommendations

Better language

FHWA should retain the existing presumption that a speed limit is near the 85^{th} percentile speed on all road types and add support to explain the reason:

> Support: Research has found that speed limit signs have little if any effect on traffic speed and crash involvement is greater for motor vehicles far above or below the average speed of traffic, especially turning vehicles. The 85^{th} percentile rule accomodates the responsible majority of drivers while allowing enforcement to be targeted at the fastest drivers.

FHWA should also clarify that the options in 2009 MUTCD Section 2B.13 paragraph 16 affect selection of a speed near the 85^{th} percentile speed rather than overruling the 85^{th} percentile rule.

[13] See "Ordinance approval for recommended speed limit revisions and additions", council file No. 15-1006, October 16, 2017

> Support: The choice of a speed within 5 mph of the 85th-percentile speed may be guided by A. . . . B. . . .

Conclusion

According to the Federal Highway Administration, US Department of Transportation:

> The purpose of speed zoning is to establish a speed limit that is the maximum reasonable and safe speed for a section of road. There are many factors that affect driving speed and crash risk including driver, vehicle, roadway, traffic and environmental factors. The prevailing speed of traffic reflects the collective judgement of the driving population on what appears reasonable and safe on a given segment of roadway. The prevailing speed, therefore, provides a measure that objectively accounts for most factors affecting safe speed. Changing a speed limit on a road may, but does not necessarily change the prevailing speed on the road.
>
> Drivers who travel at the 95th percentile speed and above (i.e. fastest 5 percent) have significantly higher crash rates than those who drive at or near the 85^{th} percentile (and also those whose speed is closer to the average speed. Since the purpose of speed zoning is to facilitate safety by informing drivers of maximum speeds for normal conditions, the posted speed limit should reflect the upper limit of the safest speeds (i.e., those near the 85^{th} percentile).[14]

The Federal Highway Administration should follow the Federal Highway Administration's advice.

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[14] 66 FR 29855

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