

NPA Item 67

This item requested comments on the 2017 NTSB report on their report, *Reducing Speeding-Related Crashes Involving Passenger Vehicles*. Specifically, comments were requested regarding their recommendations pertaining to removal of the 85th percentile speed guideline in the MUTCD, automated enforcement and the use of expert systems, such as USLIMIT2.

The report commented on the fatalities and horrors of “speeding”. However, it offered no objective definition of what constitutes speeding. Much of the text conflated the distinct concepts of higher speeds, unsafe speeds and speeding. Much of the concern was focused on interstate freeways where speed limits were raised to 75, 80 and 85 miles per hour, which involves less than one percent of the roadways in the country. However, there was virtually no discussion of those urban arterials that operate at 35, 40 and 45 miles per hour. After reviewing it I reach the unfortunate conclusion that its findings were biased and pre-determined.

My comments follow:

1. 85th percentile speed:

As summarized below, the NTSB report provided no compelling research nor evidence whatsoever that the 85th percentile speed is an invalid method. The report offered opinions and statements displaying ideological bias but no research findings. However, it offered no compelling rationale why the 85th-percentile speed guideline should not be applied to all arterial highways. Thus, the NPA text should be modified.

- For example, the report (Section 3.1.2) cited a 2012 study by Forbes, Garner, Mc Gee and Srinivasan wherein they mentioned prior studies that showed that the collision rate was lowest when most drivers were below the 85th percentile speed. However, they dismissed them as too dated because the studies were conducted in the 1990’s or before and therefore “...may not be valid under scrutiny...” However, there was no research provided to justify that statement.
- Further, the report (Section 3.1.5) claimed that “Research has found that lowering speed limits can lead to sustained traveling speed reductions.” Then they cited sources for that conclusion, such as Kloeden and Woolley in 2012 and De Pauw and others in 2014. However, a review of those reports shows that the former was conducted in Australia and the latter was conducted in Belgium, which hardly represents typical conditions in the United States.
- Finally, the report (Section 3.1.5) claims that lowering the speed limit can lead to crash reductions in urban areas. The first study cited by Islam, El-Basyouny and Ibrahim in 2004 provided no actual data. Rather, it was a modeling exercise which *estimated* crash reduction based on a “multivariate Poisson-lognormal with conditional autoregressive distribution” model. The second study cited by D’Elia,

Newstead and Cameron in 2007 did not evaluate speed limit reductions at all and did not include data in the United States. Rather, it examined the impact of an aggressive automated speed enforcement campaign, including a 50% increase in operating hours, covert (flashless) operation and the lowering of the speed detection thresholds. Further, the study was conducted in Australia.

- There was no evidence presented that speed limit reduction results in lowered actual speeds on conventional highways. Rather, they cited some data regarding speed increases on freeways following the raising of speed limits to the highest levels in the nation, such as 75 to 85 miles per hour. Certainly, this selective type of data cannot be applied to urban arterials with speeds in the 35 to 45 mile per hour range. Virtually, all research studies to date confirm that speed limit increases on conventional highways have negligible impact on actual speeds.
- It is clear that the report was not fully candid about the findings. Thus, there is no basis for dismissing the 85th percentile speed guideline as being insensitive to all road users, as drivers tend to adjust their speeds when it is apparent that they are in activity centers where there are concentrations of pedestrians, bicyclists, buses, etc. There are a variety of traffic control measures that can better address their needs other than arbitrary speed limit reductions.
- When this important matter was first presented to the Council of the National Committee on Uniform Traffic Control Devices, the findings of the NTSB report were either not completely understood or possibly misrepresented. Accordingly, it is recommended that Paragraphs 03 and 04 be deleted and that the 2009 text be restored to state, ***“When a speed limit within a speed zone is posted it should be within 5 mph of the 85th-percentile speed of free-flowing traffic vehicles.”***

2. Automated speed enforcement:

My comments follow:

- Enforcement has to be perceived by the public to be fair and impartial. Currently, the country is very divided regarding the enforcement of laws and treatment of those persons who violate laws. If automated speed enforcement systems were widely deployed they might be perceived as Big Government Overstretch and could result in distrust in government.
- Laws should, for the most part, be self-enforcing. Law enforcement should focus on the relative few who are truly behaving outside of the norm of civil and safe driving behavior, such as the top 15% of violators.
- Many cities that once had automated enforcement systems for red light enforcement abandoned them, such as Los Angeles. The Los Angeles City Council abandoned it because it was perceived by the public as more of a revenue enhancement than a traffic safety measure.

- Any automated speed enforcement should be deployed only to those locations and situations where there is a demonstrated and compelling need for traffic safety relief. Otherwise, public trust would be violated.

3. Expert Systems, such as USLIMIT2

My comments follow:

- Expert systems play a role in projecting, estimating, approximating and simulating traffic and driver behavior.
- Expert systems are no substitute for those characteristics that can be directly measured, just like simulated music can never be as good as a full orchestra with real musical instruments.
- The 85th percentile speed of drivers is affected by their perception of many factors that they observe and experience, such as parking friction, signal density, driveway frequency, pedestrian/bicycle activity and any fronting development. Only human brains can process all of these factors and determine what an appropriate speed response should be. A model can never be as sophisticated, as we are learning from our experience with connected and automated vehicle systems.
- A thoughtful speed limit study considers other factors in addition to the 85th percentile speed, such as any unexpected conditions and the collision rate compared to similar roadways. Unexpected conditions, which might justify a speed limit reduction, cannot be simulated because it is an outlier condition. Further, the collision rate comparison with similar roadways, which might justify a speed limit reduction if significantly higher, can vary widely among jurisdictions, depending on local conditions.
- Since all the factors that a speed limit study should consider are either measurable or able to be considered by an experienced engineer, a “black-box” program should not be substituted for a thoughtful approach. If this were to be the case we wouldn’t need experienced engineers but rather technicians that simply plug in data to obtain output that they cannot explain.
- Thus, USLIMIT2 should be relegated for use for new or planned roadways that have no history or data that can be measured.