



Kansas LTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Road & Bridge Agencies

Setting a Speed Limit: How it's Done

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A look at safety, engineering, and majority rule.

Speed zones are established to help provide safe and reasonable speeds on a given section of a roadway. The most accepted method for establishing speed zones is to set the limit at the 85th percentile of what motorists drive. The 85th percentile, a large majority of the drivers, is usually considered reasonable. Posted speed limits generally reflect the speed reasonable people drive under most circumstances, because laws that reflect the behavior of the majority of motorists are the most successful.

According to the Kansas Department of Transportation (KDOT), speed zoning is based on four concepts:

A. Driving behavior is an extension of social attitude. The majority of drivers respond in a safe and reasonable manner as demonstrated by their consistent favorable driving records.

B. The normally careful and competent actions of a reasonable person should be considered legal.

C. Laws are established for the protection of the public and the regulation of unreasonable behavior on the part of individuals.

D. Laws cannot be effectively enforced without the consent and voluntary compliance of the public majority.

MUTCD says engineering is needed

What does engineering have to do with setting speed limits? *The Manual on Uniform Traffic Control Devices* (MUTCD) Section 2B.13 says speed zones (other than statutory speed limits) shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices. Traffic investigators base their decisions on field data from the study area and their judgment from driving the study area. It is the judgment of the traffic engineer that determines if any factor in the speed study warrants a downward (or upward) adjustment of the 85th percentile speeds. It is only after all variables are considered that a speed limit is established so that traffic can flow safely and efficiently.

The above need for supporting data when changing a speed limit is why Tony Hermann, road and bridge director for Seward County, is not going to recommend changing the speed limit on his county roads following the state's decision to raise speed limits on much of the state system from 55 to

65 mph. Kansas Statutes Annotated 8-1560 (h) says a local speed limit can be changed with or without an engineering study, but also says local authorities "shall declare a reasonable and safe maximum limit." You can't do that without speed data to determine the 85th percentile.

"If a high speed crash happened on one of our roads and someone sued the county saying the speed should not have been raised from 55 to 65, we would have no documentation to defend ourselves," he said.

We don't have the funds to pay for studies on all our county roads."

Dan Harden from BG Consultants in Lawrence, KS, advises road officials to "ask the county counselor what he or she is comfortable defending in court" before you consider changing a speed limit that does not meet the 85th percentile.

Data is used in setting a speed limit

Data is collected using a speed-radar from measuring operating speed of random vehicles on the roadway under study. Off-peak-hours are normally used when conducting a speed study with a sample size of at least 50 free-flowing vehicles in each direction. On low volume roads, where there is little traffic, it may be difficult to get a sample of 100 total vehicles. The study may then be terminated after a study period of one hour. The vehicles selected are random vehicles whose speeds are not impeded by other vehicles in the traffic stream (free-flow condition) to avoid bias in the results.

Speed limit must be realistic

Realistic speed limits not only invite the public to comply



Setting a speed limit is not as easy as putting up a few new signs. It needs to be done carefully and objectively.

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by conforming to the majority's behavior, but they also are a clear reminder of reasonable traffic control in the area—an effective enforcement tool. They usually minimize the public antagonism toward police enforcement. They encourage drivers to travel at a speed where the risk of crash involvement is lower.

Unrealistic speed limits, on the other hand, do not invite voluntary compliance because they do not reflect the majority's behavior. They make the behavior of the majority unlawful, in fact. They usually maximize public antagonism toward the police and create a bad image for a community in the eyes of tourists. Besides which, they create a potential for increase in crashes along the roadway.

For more information

For more information on setting speed limits, consult the brochure at the link below.

Reprinted from the Spring 2010 issue of the *Kansas LTAP Newsletter*, a publication of the Kansas Local Technical Assistance Program (LTAP) at the Kansas University Transportation Center.



Source:

- Establishing Speed Limits: A Case Study of 'Majority Rule'. KDOT. Accessed 4-25-10. <http://www.ksdot.org/burTrafficSaf/brochures/EstablishingSpeedLimits.asp>