

Rational Speed Limits and the 85th Percentile Speed

Frequently Asked Questions

What are Rational Speed Limits?

Rational Speed Limits promote public safety by helping drivers choose a reasonable and prudent speed that is appropriate for normal traffic, weather and roadway conditions. They encourage more drivers to travel at about the same speed, which has been shown to reduce the likelihood of crashes. Traffic engineers and safety officials determine rational speed limits based on a formal review of traffic flow, roadway design, local development and crash information. Rational speed limits make more sense to the vast majority of drivers because they are neither unrealistically low nor high, thus they are largely self enforcing. To be fully successful, rational speed limits must be strictly enforced to reduce the relatively low numbers of flagrant high-speed violators. Public education is also a key element, to make the public aware that the new speed limits have been carefully chosen for each road segment, reflect

what the vast majority of safe drivers are already doing, and will be strictly enforced by the police.

How were the rational speed limits determined?

A team of traffic engineers and public safety officials analyzed traffic flow and speed data from many locations along the roadway. They also reviewed crash data from multiple years, and considered the existing roadway design features. They combined this information to select a reasonable and prudent speed limit that is consistent with the speeds chosen by the vast majority of drivers. The starting point for determining the new speed limit is the **85th Percentile Speed**. The traffic engineers may then adjust that speed limit to account for other safety factors.

What does the 85th Percentile Speed mean?

The **85th Percentile Speed** is the speed that 85 percent of vehicles do not exceed. Another way of looking at this is that only 15 percent of vehicles go faster than this speed, and 85 percent go at or below this speed.

Why is the 85th Percentile Speed a good basis for the speed limit?

Most drivers behave in a safe and reasonable manner, do not drive at excessive speeds and do not want to get into crashes. The **85th Percentile Speed** is usually slightly slower than the upper bound of speed that includes these generally prudent drivers. Research has shown that vehicles traveling between the 50th and 90th percentile of speed have

the lowest risk of crashing due to speed. Drivers who exceed the 90th percentile have a significantly higher risk of crashing. Laws are intended to protect the public by regulating unreasonable or unsafe actions. So the **85th Percentile Speed** is a reasonable basis for the speed limit.

 ***What happens if the 85th Percentile Speed is too fast?***

The traffic engineering and safety team that sets speed limits should also take into account road design, roadside development, crashes and other factors when they choose the rational speed limit for a road segment. If the **85th Percentile Speed** is too high for prevailing conditions, then they can choose a somewhat lower speed limit that still includes the majority of drivers.

 ***Won't raising the speed limit cause people to drive faster and cause more crashes?***

The Federal Highway Administration studied nearly 200 roads in 22 states where speed limits were raised, lowered or left unchanged. Prior to the speed limit change, 55 percent of drivers exceeded the posted speed limits. After speed limits were raised or lowered as much as 20 mph, there was a slight change in speed, but generally less than 1 mph. There were no significant changes in crashes, although crashes tended to decrease where speed limits were increased to realistic levels. Also, there was little effect on speeds or crashes on intersecting or nearby roadways.

 ***Will a rational speed limit be more difficult to enforce?***

It should be less difficult to enforce than the current speed limit, and will meet with less driver objection, thus will not erode respect for law enforcement. It is a speed limit that seems fairer to drivers because the vast majority already drive at or below that speed without crashing. It leads to a more effective allocation of enforcement and other speed management resources.

 ***What should the threshold of enforcement be?***

Strict enforcement of the rational speed limit is essential for its success. During an initial enforcement period the threshold may be set higher, to target the top 5 percent or so of speeders. As speeds of the worst offenders come down as a result of enforcement, the threshold can be lowered as more drivers comply with the new limits. At that point, an enforcement threshold of about 5 miles per hour above the rational speed limit is appropriate. That threshold will normally target the fastest drivers who constitute the most flagrant speeders. These are probably the same violators that traffic law enforcement officers would normally target even without rational speed limits. **The difference is that with rational speed limits, 85-90 percent of the drivers are within the law, whereas under conventional lower speed limits, typically less than half of drivers obey the speed limit.**