SPEED LIMITS

Fundamental to most laws in America the thought that the behavior of a majority of people is reasonable. Laws are written to single out the unreasonable behavior of a minority of the population. Speed laws are based on the same ideas.

The law states

> *"No person shall drive a vehicle at a speed greater than is reasonable and prudent under the conditions and having regard for the actual and potential hazards then existing."*

Reasonable people want to get to their destination as quickly as possible, but they also are careful drivers and do not wish to endanger themselves or anybody else. On any section of road, reasonable drivers will select a speed they are comfortable with, not too slow or too fast, but one that will get them where they want to go safely and without undue delay. In selecting their speed, they will intuitively consider things like roadway geometry, traffic conditions, weather, pedestrians and the like. As will be discussed later, the number posted on a speed limit sign has little effect on the speed they choose.

The main reason speed limits are posted is to inform motorists of the speed which is considered reasonable by a majority of drivers on a particular road. Motorists, especially those unfamiliar with the road, can use this information to evaluate how they should drive that road. Speed limits are not intended to force reasonable motorists to speeds they consider unreasonable.

SETTING SPEED LIMITS

The procedures used to set speed limits are the result of years of research and experience in the highway business. Most states use what is known as the 85-percentile speed to set speed limits. This means that if speeds are measured on any section of road, 85% of the motorists will be driving at or below the 85-percentile speed.

In order to explain why this number is chosen, the assumption is made that the average speed of motorists on a section of road is reasonable. Figure 1 graphically illustrates the typical distribution of motorists' speeds on a road. Each bar on the graph represents the total number of motorists who drive each particular speed on a road under study. As you can see, the greatest number of motorists drive about the average speed and fewer of them drive slower or faster. Speed studies almost invariably show that the majority of drivers will be closely grouped within 5 mph of the average speed, either 5 mph higher or 5 mph lower. This small 10 mph range will include about 70% of the drivers on the road. Speed studies also show that 15% of motorists will drive unreasonably slow, well below the average speed. Therefore, a speed limit about 5 mph above the average speed encompasses the 70% reasonable majority plus the 15% minority of slow drivers to result in the 85-percentile speed. The remaining 15% of speeds above the 85 percentile are indicative of the minority of drivers who are considered to be exceeding a reasonable speed.

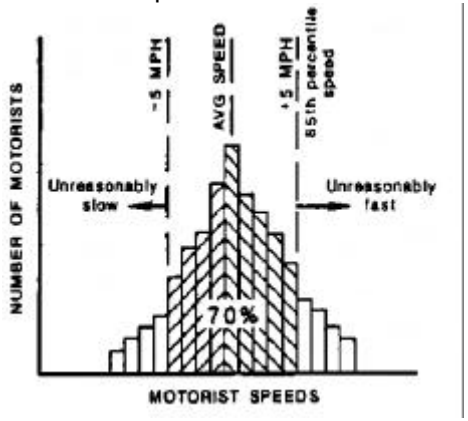

Figure 1

COMMON MISCONCEPTIONS

Speed zoning is just one traffic control "tool" for improving the driving environment on highways. Very often, however, speed zoning is seen as a solution for traffic problems it cannot address. When emotion overrides logic and reason, misconceptions about speed zoning become difficult to refute. The two most widely held misconceptions are that lower speed zones reduce speeds and reduce accidents.

Many years of research have proven again and again that lower speed limits do not appreciably alter traffic speeds. Tests have been conducted where the numbers on speed signs were arbitrarily raised or lowered to see what effect this would have on traffic. Before and after speed checks were made and the conclusive results were that traffic speeds remained very nearly the same regardless of the number on the sign. Typically, speeds did not go down when the numbers were lowered nor did speeds go up when the numbers were raised. These studies indicate the validity of the assumption that drivers select their speeds intuitively based on the environment around them and the speeds with which they feel comfortable and safe.

Other research studies have shown that speed limits set below the reasonable speed of the majority do not have significant effects on a reduction in the number of accidents on a road. In fact, accidents may increase with unreasonably low speed limits. The safest traffic condition is when everybody drives at the same speed. Studies have shown that the minority of people who choose to drive faster **or slower** than the majority of traffic around them have a greater chance of being in an accident.

As shown in Figure 2, the possibility for an accident is lowest for speeds near the 85th percentile. If everyone drive the same speed, no one would need to pass anyone else, the possibility of rear-end collisions would be reduced, and the road would be safer overall. Differences in speeds between vehicles provide

opportunity for collisions to occur. If speed zones are lower than the reasonable speed of the majority, a few motorists will unwillingly slow down a little, most drivers will ignore the zones and drive the reasonable speed anyway, and some drivers will abandon respect for the speed zone signs altogether and disregard even the reasonable speed. Therefore, by arbitrarily lowering speed limits below responsible levels, a variation in motorist speeds results and a more hazardous condition may be created.

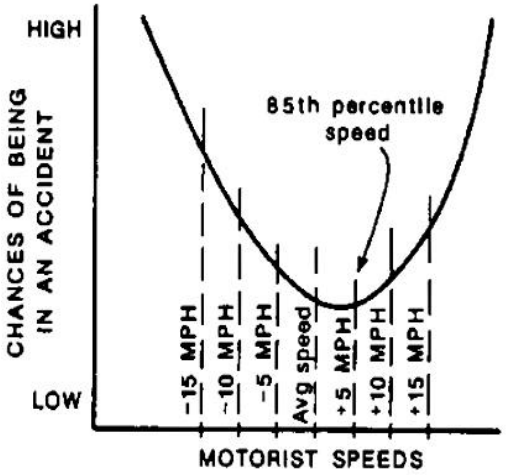

Figure 2

SPEED LIMITS TOO LOW

There are definite disadvantages to setting speed limits below the 85-percentile speed. If reasonable drivers see an unreasonably low speed limit without seeing a need to drive that slow, they will tend to ignore the signs and develop a disrespect for speed limits in general.

Enforcement people must not only deal with the unreasonable minority of motorists who do drive too fast but they must also bear the brunt of the dissatisfaction of the reasonable people who they ticket for exceeding the low posted speeds. Also, if the speed limits have been set according to the 85 percentile, the large "tolerances" used in enforcement are unnecessary. Such limits are self-enforcing because the majority of people drive the posted speed already. Setting speed limits too low and then allowing drivers to exceed the limit by several miles per hour before issuing tickets also creates a general disrespect for speed zoning.

ACTIONS THAT YOU CAN TAKE TO REDUCE SPEEDING

1. Set a good example. Obey traffic laws and respect other users.
2. Talk to your neighbors. The Police Department often finds that many of the speeding motorists live in the neighborhood. Explain to your neighbors the importance of driving responsibly and the effect of speeding on safety.
3. Report speeding. The Madison Police Department considers citizen requests when determining which streets to patrol for speeding. Call your District Office to report speeding concerns in an area. Call the speeding hotline (266-4624) with specific information on violators.
4. Volunteer to monitor a speed display board, available from City Traffic Engineering 266-4761. This is an electronic sign combined with a radar unit that displays motorists' speeds. It is provided to citizens as part of our Neighborhood Speed Watch Program. The speed board is a friendly reminder to motorists that they should watch their speed.
5. Ride a bicycle, walk or take the bus to your destination.

In some cases, effectively reducing the speed of traffic may entail engineering changes in the street. For these areas, the Neighborhood Traffic Management Program (NTMP) is available. Call 266-4761 to request more information or check out the Traffic Engineering website at: www.ci.madison.wi.us/transp/trindex.html

CONCLUSION

Most traffic problems are not simple nor do they have simple solutions. Citizen demands for speed zoning are sometimes made with the admirable motive to "quick fix" a particular problem. No single traffic control tool, however, can be a cure-all for traffic problems in the community. Hopefully, this pamphlet has shown what speed zoning can and cannot do.

Traffic Engineering staff are available to answer questions and assist in any way they can. Helpful comments are always welcome.